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Special Scientific Report — Wildlife No. 236

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UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

WATERFOWL STATUS REPORT, 1977

Compiled and edited by
Carey S. Smith
Sharon L. Rhoades
K. Duane Norman

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Waterfowl Status Report, 1977

Compiled and Edited by

Carey S. Smith, Sharon L. Rhoades, and K. Duane Norman

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This report contains information from the 1976–77 midwinter waterfowl survey, the 1977 waterfowl breeding population and production surveys, and the waterfowl harvest surveys for the 1976–77 hunting season. This information was provided by the U.S. Fish and Wildlife Service, the Canadian Wildlife Service, and various cooperating State wildlife conservation agencies. Winter surveys are composed of the midwinter survey reports submitted from each of the four flyways and the midwinter surveys covering the east coast, west coast, and central highlands of Mexico. The breeding ground surveys section is composed of many individual reports that together provide breeding population and production estimates for most waterfowl species within a major portion of their breeding range. The waterfowl harvest survey provides estimates of waterfowl hunting activity and success. Information from surveys of the wintering and breeding populations of waterfowl, coupled with data from the annual harvest survey, are considered in the development of annual hunting regulations for waterfowl.

Credit has been given to each individual or organization that submitted a report. Although some of the narrative statements have been condensed and a few tables deleted or condensed if they contain data presented elsewhere in this report, the essential information from each report has been retained. The breeding ground survey strata for areas surveyed by the Fish and Wildlife Service are shown in Fig. 1.

Winter Survey

A comprehensive survey of North American waterfowl on their wintering grounds is attempted each January by Fish and Wildlife Service personnel, assisted in the United States by State conservation departments and private individuals, in Canada by the Canadian Wildlife Service, and in Mexico by the Dirreccion General de la Fauna Silvestre.

The U.S. winter survey was initiated in 1933 and for 14 years was the only source of extensive inventory data relating to waterfowl distribution and abundance. With the development of spring breeding ground surveys commencing in 1947, less emphasis was placed on the winter survey. It continues, however, to furnish valuable information.

- It provides the only direct means of monitoring the status of species not covered adequately by the spring surveys, such as the black duck (*Anas rubripes*) and brant (*Branta bernicla*).
- Winter survey data complement data from the spring surveys for important but less abundant species such as the redhead (*Aythya americana*) and canvasback (*A. valisineria*).
- It helps define the distribution and species composition of wintering flocks. Long-term data give insight into changes in migration patterns and wintering areas.
- Data are frequently used in land acquisition and refuge decisions. It can be argued that waterfowl use is a good indicator of the value of an area.
- Survey data support continuing research efforts by providing an indication of waterfowl distribution and relative abundance.
- Winter survey data are often used in the preparation of environmental impact assessments.

The Mexican winter surveys began in the early 1950's and were run annually through 1965, with the exception of 1957. From 1965 through 1976, complete surveys were attempted only once every fifth year. Only black brant (*Branta nigricans*) habitat on the West Coast was surveyed every year. Survey coverage for 1977 included all major wintering areas in the United States and Mexico. Winter survey data appear in tables A-1, A-2, and A-3. The following are summaries of survey reports from the various flyways and Mexico.

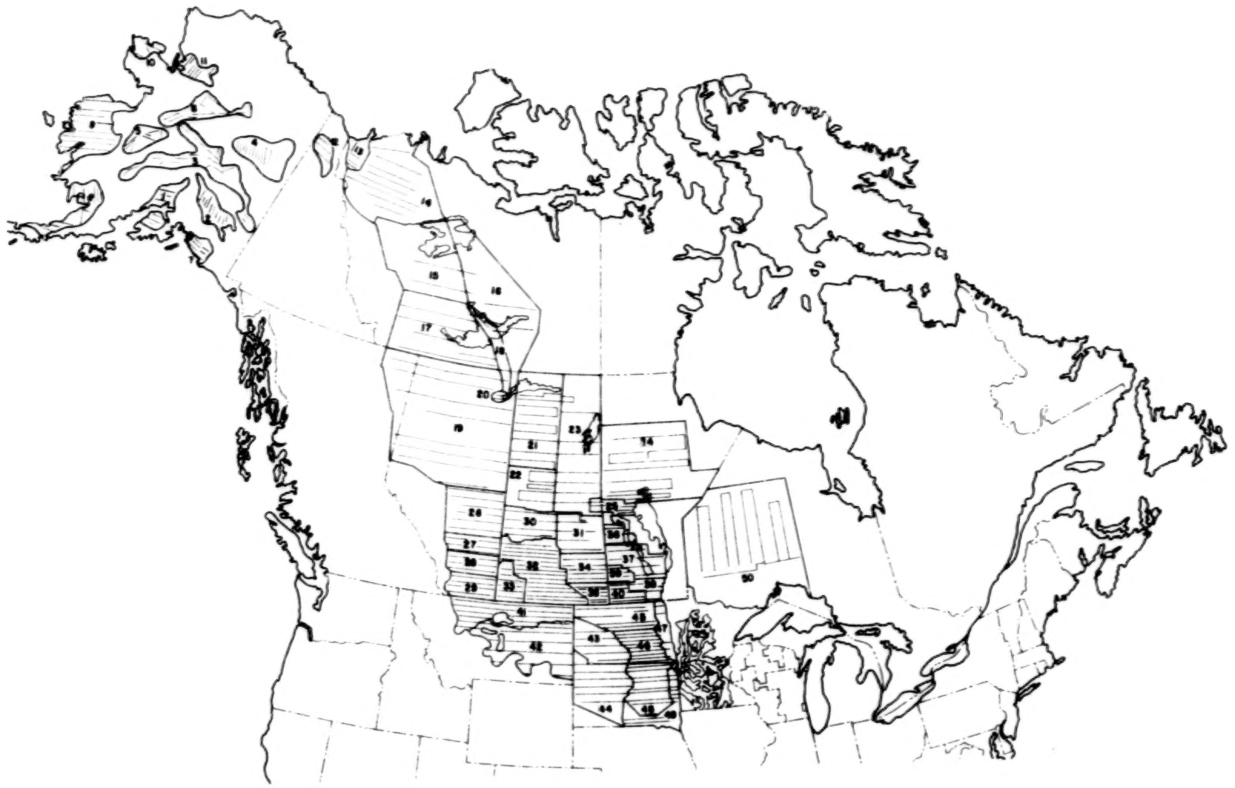

Fig. 1. Transects and strata for principal areas of waterfowl breeding population and production surveys.

Pacific Flyway

Data supplied by John E. Chattin
U.S. Fish and Wildlife Service

The annual winter waterfowl survey started on 3 January 1977. Counts were delayed in California and parts of the Columbia Basin due to foggy weather, but overall counts were considered comparable to previous years. Forty-five Service and 136 State personnel participated in this year's survey. Twenty-nine aircraft flew 187.7 h covering 30,113 km. Approximately 11,400 additional kilometers were covered by personnel in 79 automobiles.

Results of this year's survey (Tables A-1 and A-2) show a slight increase in total ducks from 1976. The dabbling ducks index was 6% above 1976 and 8% above the 10-year average. The mallard (*Anas platyrhynchos*) count was down 6% from 1976 and down 29% from the 10-year average, whereas pintail (*A. acuta*) were 9% above 1976 and 32% above the average. The diving ducks were 6% above 1976 and 15% above average. The total goose count showed a decrease from 1976 (–7%) and from the 10-year average (–4%). The most significant decline was noted for the white-fronted goose (*Anser albifrons*), which was down 40% from 1976 and 54% below the average. The snow goose (*A. caerulescens*) was up slightly from 1976 (+3%) and from the 10-year average (+5%), while Ross' goose (*A. rossii*) was up 34% over 1976 and 42% over the average. Black brant recovered from a low count in 1976, increasing 57% for the year and 34% over the previous 10-year average.

Central Flyway

Data supplied by Harvey W. Miller
U.S. Fish and Wildlife Service

Goose surveys were conducted between 13 and 17 December 1976. The South Dakota count may be low because mild weather allowed geese to use field loafing areas during the Missouri River survey. Texas reported the arrival of significant numbers of geese after the surveys were completed, again reflecting the mild weather conditions. Total geese were recorded to be below both the 1976 survey (–30%) and the average (–10%). All species showed a decline.

Surveys of ducks, coots, and swans were scheduled for 3–7 January 1977. A total of 61,639 km were traveled by 245 participants, using automobiles, boats, and 29 aircraft. Inclement weather delayed the surveys until

10 January in east Texas, 12 January in eastern Oklahoma and the San Luis Valley of Colorado, and until 19 January in the Trans Pecos of Texas. Surveys could not be conducted in the Big Horn Basin of Wyoming.

Dabbling ducks showed a 7% increase over 1976 and a 23% increase over the 10-year average. The most significant increase was recorded for gadwall (*Anas strepera*), which were 75% and 69% above the 10-year average and 1976 total, respectively. Diving ducks were 17% below the 1976 count but remained 47% above the 10-year average. Redheads were 68% above the 10-year average and scaup (*Aythya marila*) were 62% below the 1976 total. The total count for all ducks was 4% above 1976 and 26% above the average.

Mississippi Flyway

Data supplied by Kenneth E. Gamble
U.S. Fish and Wildlife Service

The 1977 survey was scheduled for the week of 3–7 January. Extremely severe weather throughout the flyway resulted in prolonged delays and failure to complete surveys in some areas. Alabama was the only State in Region 4 to complete all surveys. The comparability of the 1977 waterfowl estimates to previous surveys is questionable because of the difficulties caused by adverse weather. There were 431 participants using 47 aircraft, 269 automobiles, and 19 boats, in which they traveled a total of 62,449 km.

The dabbling ducks were down 30% from 1976 and 6% from the 10-year average. The most significant yearly declines were recorded for gadwall, down 43%; wigeon (*Anas americana*), down 66%; blue-winged teal (*A. discors*), down 58%; and shovelers (*Spatula clypeata*), down 69%. Diving ducks were 19% below 1976 but were still 48% above the 10-year average.

Geese were slightly up from 1976 (+8%) and significantly above the 10-year average (+33%), and Canada geese (*Branta canadensis*) showed the largest increase. This year's total cannot be compared to the 10-year average because of a shift in the goose survey from a total waterfowl count in January to an exclusive goose count in December.

Atlantic Flyway

Data supplied by Warren W. Blandin
U.S. Fish and Wildlife Service

Most States completed their inventories within the survey dates (3–7 January), but strong winds hampered flights in the Carolinas and Florida, and freezing rain and snow delayed flights in Virginia and West Virginia. There was extensive icing over of all major rivers, shelter bays, inlets, and stream and tidal marshes in the Northeast and Mid-Atlantic States. Significant waterfowl mortality resulted from the extreme icing and the unavailability of waste grain and winter cover crops due to heavy accumulations of snow. These extreme weather conditions produced an abnormal waterfowl distribution, but the total numbers were generally close to those of the 10-year average.

Total waterfowl increased by 15%, the most notable increase being American coots, *Fulica americana* (+41%) and geese (+24%). Canada geese approached the million mark (+18%) and brant declined by 42%. This decline may have represented a shift in population that was not picked up by survey crews; however, brant suffered heavy losses later in the wintering period.

Mallards showed a substantial increase (39% above 1976, 47% above the 10-year average), whereas black ducks dropped 5% below the 1976 survey estimate and nearly 7% below the 10-year average.

Redheads and canvasbacks were well above the 10-year average (33% and 17%, respectively), and scaup and ring-necked ducks (*Aythya cullaris*) were below (14% and 46%, respectively).

Participation included 35 Federal, 60 State, and 12 volunteer personnel covering 51,823 km in 3 aircraft, 13 boats, and 35 automobiles.

West Coast of Mexico and Baja California

Data supplied by K. Duane Norman
U.S. Fish and Wildlife Service

The western Mexico survey was conducted during 12–22 January 1977. This year's survey was the first complete survey since 1970. Flight time was 48.4 h covering 10,787 km. Major emphasis since 1970 has been on the black brant wintering areas. Little change in waterfowl habitat was evident since 1976, although some drying was noted near Topolabampo. Land clearing and dike construction continues in the El Dorado to Dimas area. Agricultural and industrial development pose little threat to the brant habitat; tourism, however, can become a great threat. Sport and commercial fishing and sightseeing could cause enough disturbances on Baja to force the brant to move to more desirable areas on the mainland.

Dabblers comprised 81% of the ducks observed. Pintail (45%) were most abundant, followed by green-winged teal (*Anas crecca*), 16%; scaup, 9%; shoveler, 8%; blue-winged teal and cinnamon teal (*A. cyanoptera*), 7%; wigeon, 4%; ruddy duck (*Oxyura jamaicensis*), 4%; and redhead, 3%. White-fronted geese were about as abundant as last year, but snow geese were more numerous especially south of Mazatlan. Black brant are back to the numbers recorded in the late 1960's. An increase of 17% was noted since last year. This year's brant total was 5% higher than the 1967–76 average.

Mexico, Central Highlands, and Southern West Coast

Data supplied by Douglas S. Benning
U.S. Fish and Wildlife Service

The survey was initiated from Juarez on 13 January and progressed southward through the highlands and along the lower west coast. The survey was terminated at Juarez on 26 January. A total of 52.1 flight h covering approximately 12,606 km were required to complete the aerial coverage.

The northern and central highlands had above-normal water levels. Increased agricultural activities and the associated expansion of irrigation practices have altered certain traditional waterfowl areas. This has not significantly affected waterfowl numbers but has resulted in redistribution of some waterfowl concentrations. Along the lower west coast habitat conditions appeared to be very similar to those observed in earlier years; however, waterfowl use has deteriorated to such an extent that the habitat may have undergone some subtle change undetectable from aerial observation.

Total waterfowl numbers in the highlands showed a substantial increase over 1970 and 1975. The 1977 total duck count was 378,865, well above the 288,735 recorded in 1970 and 302,748 recorded in 1965. Pintails accounted for the greatest increase. Mexican ducks (*Anas diazi*) totalled 7,365, only half the number observed in 1975 and 1970, but about equal to that of 1965. Snow and white-fronted geese were well above the average observed in recent years.

East Coast of Mexico

Data supplied by Arthur R. Brazda
U.S. Fish and Wildlife Service

The survey began 14 January and was terminated 28 January. Forty-nine hours were flown, covering eastern Mexico from the Rio Grande Delta to the Campeche-Yucatan lagoons. High-quality habitat conditions prevailed throughout most of the gulf coast. Exceptions were the Panuco River-Tamesi River Delta, where the water was too high, and the Campeche-Yucatan lagoons, where portions of the lagoons were dry. Oil pollution continues to be a problem in the Tampico region as it does in the Coatzacoalcos-Minatitlan area and in certain parts of the Tabasco lagoons, between Veracruz and Carmen. The excellent habitat conditions are reflected by an 88% increase of total waterfowl. Total ducks were up 179%. The most significant increases were found in pintails (+564%), redhead (+254%), and scaup (+438%). Geese were down 539%, and all species showed significant declines from the 1975 totals. The only species that showed little fluctuation was American coot, which increased only 9%.

Breeding Ground Survey

Aerial surveys of waterfowl breeding populations and production were developed in the late 1940's by the U. S. Fish and Wildlife Service to monitor the status of habitat and waterfowl, primarily ducks, over a large portion of their breeding grounds in North America. Annual recording of this information is essential for effective management of the resource. Currently, waterfowl population and habitat changes are surveyed over 3.4 million km^2 of breeding habitat within portions of Alaska, the Northwest Territories, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, the Dakotas, and Montana. In addition to the Service's annual breeding ground survey, a number of States conduct a similar survey. State reports that have been submitted to the Service are incorporated herein.

Beginning in 1973, the Waterfowl Status Report reflects only the current year's data for Service-conducted surveys. Breeding population survey tables also have been changed to reflect adjustment for visibility bias. All reports before 1973 reflect unadjusted figures. The historical production survey data (1953–71) are available in *Special Scientific Report – Wildlife* No. 160 (1972). The procedures followed in conducting the breeding ground surveys are established in the Service's standard operating procedures for annual waterfowl breeding ground population and habitat surveys.

Alaska and Yukon Territory

Data supplied by James G. King and James C. Bartonek
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

December, January, and February set records for mildness throughout Alaska. March and April were near normal and May was normal in the interior and northern tundra but cool on the Yukon Delta. Snowfall on the Yukon Flats and in western Alaska was somewhat above average in the recharging of the closed basin lakes. The net result is that the interior habitat where water levels fluctuate was at what appeared to be an optimum condition for all species. The tundra habitat appeared to be normal. The only areas without optimum habitat were the goose areas on the outer Yukon Delta where brant and cackling geese nesting was delayed and reduced from last year.

Breeding Population (Table B-1)

The survey was conducted from 20 May to 14 June 1977 and resulted in the highest duck population index recorded in 22 years of surveys. The total duck breeding population estimate was 68% above 1976 and 70% above the 1968–77 average. Dabbling ducks were up 115% from 1976 and 94% from the 10-year average. Pintails were up 130% from 1976 and 130% from the average. Diving ducks were up 20% from 1976 and 46% from the average. This increase in divers was apparently due to an influx from the dry Canadian prairie States. For example, 17,100 redheads were recorded for the first time in the transects covered by this survey.

Production

No production surveys were flown in 1977, but good production conditions were predicted. The tremendous influx of birds may have increased total breeders, but territorial squabbles and the unfamiliarity of migrants may have kept production below optimum levels.

Northern Alberta, Northeastern British Columbia, and the Northwest Territories

Data supplied by Morton M. Smith and Lonnie D. Schroeder
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

The season was 1-2 weeks early this year and was similar to that of 1976. Water levels were lower than normal as a result of a relatively warm winter with little snow. Most shallow-water areas were ice-free as far north as Norman Wells by 29 May. In late May and early June near record high temperatures occurred for several days in the Norman Wells and Inuvik areas. This hot weather with strong southerly winds was effective in thawing the lakes farther north by 1 June.

Breeding Population (Table B-2)

The survey was initiated on 20 May and concluded on 6 June 1977. Poor habitat conditions on the prairies produced an apparent influx of traditional prairie nesters as evidenced by both the number and composition of ducks encountered during this survey.

The duck population for the 1977 survey was second highest for this unit in the last 10 years. Substantial increases were recorded in all puddle duck populations compared to the long-term averages except for green-winged teal (-3%). Mallards, wigeon, and pintails were 14%, 21%, and 98% above the 10-year average, respectively.

Population changes among diving ducks varied. Both scaup (-8%) and bufflehead, ***Bucephala albeola*** (-7%) showed small decreases from average levels but the ring-necked duck showed a substantial gain (86%). Among the remaining species listed, oldsquaw (***Clangula hyemalis***) were 20% below average, whereas mergansers (***Mergus*** spp.) and scoters (***Melanitta*** spp.) were up 266% and 9%, respectively. The coot index provided additional evidence of the northward movement of traditional prairie nesters. Coot numbers increased markedly in this survey unit and greatly exceeded the long-term average level (+728%).

Northern Saskatchewan, Northern Manitoba, and the Saskatchewan River Delta

Data reported by Arthur R. Brazda and Bruce P. Conant
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

Moisture deficiencies and a mild winter prevailed for most of northern Manitoba and northern Saskatchewan through the 1976–77 fall and winter periods. Forest fires raged in Saskatchewan and central Manitoba from late April through mid-May. The breeding period was 2-3 weeks earlier than normal; vegetation was well-developed by mid-May and all of the lakes within a 160-km radius of Prince Albert were completely ice-free. Moderate rains that began on 16 May 1977 were helpful in sustaining water levels on critical areas. A more normal weather pattern developed north of the Churchill River drainage in Saskatchewan and north of a line running generally east of Flin Flon, Manitoba. In Manitoba the Gillam, Lynn Lake, and Thompson areas reported above-normal precipitation for the period 1 August 1976 through 31 May 1977.

Breeding Population (Table B-3)

The survey was conducted from 12 May to 12 June 1979. There was no significant change for total ducks from either the 1970 or 10-year average index. Dabbling ducks were 6% higher than the previous year and 8% above the average. Mallards decreased 8% from the previous year and 9% from the average.

Pintails increased 13% from the 1976 totals but were still 13% below the average. Blue-winged teal were 15% above the 1976 index and 33% above the 10-year average.

The diving ducks were down 14% from the 1976 index and 12% below the average. Ring-necked ducks showed the most significant loss with a 32% decrease from both this year and the 10-year average.

Summer Weather and Habitat Conditions

Weather conditions were generally conducive to a good nesting effort in the areas surveyed. Warm temperatures prevailed from mid-May through mid-June. However, temperatures during the latter half of June to the conclusion of the survey on 22 July were cooler than normal, though not detrimental to nesting.

Where habitat conditions were poor during the Breeding Pair Survey, the July production survey showed no improvement or deterioration. Water levels dropped and marshes and potholes continued to dry up on the Big Meadow Lake region south and east of Montreal Lake, Flin Flon and south, and the Saskatchewan River Delta. Greater than normal precipitation resulted in good habitat conditions in northwestern Saskatchewan and in the Lynn Lake–Thompson–Gillam–Manitoba complex.

Production (Table B-3)

The duck brood index indicates no significant change from the previous year for the comparable strata; however, considering all strata surveyed, there is an 18% decrease from the long-term average. The average duck brood size was 5.4, which is a decrease of 12% from 1976 and a decrease of 2% from the average. The late-nesting index for all dabbling ducks was 65% above the previous year and 18% above the average.

Southern Alberta

Data supplied by K. Duane Norman and John W. Koerner
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

For the third consecutive year, southern Alberta was generally dry and mild from September through April. The weather changed in May with cooler temperatures and more precipitation. Frequent rain and snow brought the precipitation level to the monthly norm by 16 May. These late rains, however, did little to improve the habitat for waterfowl. When the crew arrived in Calgary, habitat conditions were about 4 weeks ahead of normal. The May pond index was down 49% from 1976 and 45% below the 10-year average. As a whole the survey area, except stratum 26, was far too dry for normal waterfowl production this year.

Breeding Population (Table B-4)

The survey was conducted from 7 through 25 May 1977. Total ducks decreased 33% from 1976 with losses being shared almost equally between the puddle ducks (-34%) and divers (-36%). Of the puddle ducks, pintail showed the most significant decrease from last year (-67%). Decreases are also noted for wigeon (-45%), mallard (-41%), shoveler (-34%), and blue-winged teal (-10%). Increases from last year were indicated for gadwall (+13%) and green-winged teal (+4%). Among the divers, goldeneye (*Bucephala clangula*) showed the greatest decrease from last year (-86%). Decreases were also reported for redhead (-54%), canvasback (-16%), scaup (-28%), and bufflehead (-26%). Ringnecked ducks increased 75% from last year.

Looking at the long-term averages, puddle ducks were down 40%, but divers were 17% above the average. Increases are shown for gadwall (+2%), blue-winged teal (+5%), redhead (+16%), canvasback (+40%), scaup (+18%) and ring-necked ducks (+24%). Decreases are noted for mallard (-43%), wigeon (-56%), green-winged teal (-22%), shoveler (-51%), pintail (-76%), goldeneye (-71%), and bufflehead (-15%).

The lone drake index was 15% below the 10-year average. Instead of indicating a later than average season, this index probably indicates the pair bond is still intact, but chances are that nesting by these pairs will be less than 50%.

Summer Weather and Habitat

Temperatures averaged near normal in northern Alberta during June to slightly above normal in the southern half of the Province. Rainfall during the month was frequent, but the total amount received was far below normal. Temperatures during July were slightly below normal throughout Alberta. Rainfall, however, was well above normal as some light afternoon and evening moisture was recorded daily. This precipitation did little for the wetlands except to maintain water levels in areas already containing water. Except for the Milk River Ridge, the large wetlands near Taber, Sterling, and the Murray Lakes, stratum 27, were almost without water. Permanent wetlands were relatively abundant in most of the strata. The losses that occurred involved mostly type III wetlands. Most dugouts were full because of runoff from thunderstorms, but those dugouts and wetlands that were dry in May did not benefit from the June and July moisture.

Production (Table B-4)

The survey was initiated on 5 July and completed 13 July 1977. Waterfowl production in southern Alberta was poor. Brood indicies in southern Alberta dropped 34% below last year and 33% below the average. Greatest decreases were noted in stratum 27 (-53%), followed by stratum 29 (-52%), stratum 28 (-47%), and stratum 26 (-27%). The average number of ducklings per brood was 4.8, which represents a 10% decrease from 1976. Indicative of the poor habitat conditions was the lack of coot broods. None were recorded in the lower three strata and a 46% decrease was recorded for stratum 26. The late-nesting index showed a 64% decrease from 1976 and a 32% decrease from the 10-year average.

Southern Saskatchewan

Data supplied by Rossalius C. Hanson and William Larned
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

The past winter and early spring had normal or above-normal temperatures and a drastic reduction in moisture through April. Winter and early spring precipitation was the lowest ever recorded at many weather stations. The drought condition prevailed throughout the survey area. Temperatures remained above normal through May. In early May, southern portions of the Province received heavy rains that continued throughout the month. The effect on ponds and potholes was beneficial but not to the extent that was needed. Much of the moisture permeated the dry soil and little runoff was noted, so little nesting habitat was created. Accordingly, the May pond index was down 47% from 1976 and 46% from the 10-year average.

Breeding Populations (Table B-5)

The survey was conducted from 3 through 23 May 1977. The total adjusted duck population decreased 24% since 1976 and 12% from the 10-year average. The diving duck index was up 19% from last year, mainly due to a 43% increase in scaup. Dabbling duck index was down 30% from 1976 and was 20% below the average, with pintail (-65%), wigeon (-41%), and shoveler (-43%) showing the greatest decline from the average. The lone drake index of 65.5 was one of the lowest on recent record.

Summer Weather and Habitat Condition

The frequent rain showers reported during May continued through July with the exception of stratum 33 where there was little relief from the drought conditions. Sheet-water ponds that developed during the rains disappeared after a couple of weeks and were of little benefit, due to the previous extended period of drought. However, there were definite benefits in that the rains and runoff maintained those viable ponds that had adequate water levels. The July temperatures were cooler than normal. This helped to delay the drying of the soil and ponds. The total ponds in July 1977 were down 48% from 1976 and 33% below the 10-year average.

Production (Table B-5)

This survey was initiated on 1 July and terminated on 17 July. Despite the poor habitat conditions, the brood index was only down 16% from 1976 and up 4% from the 10-year average. The average brood size was 5.3 this year, which is 17% higher than 1976 and 4% higher than the average. Coot broods were down 46% from 1976 and 15% from the average. The late-nesting index was down 23% from last year, but up 12% from the 10-year average.

Southern Manitoba

Data supplied by Douglas S. Benning and James R. Goldsberry
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

After 3 years of relatively wet conditions in southern Manitoba, near drought conditions prevailed across the area on 1 May. Despite well above normal rainfall during May, water conditions as measured by numbers of semipermanent and permanent water bodies remained extremely poor at month's end. The May pond index was down 45% from 1976 and 37% from the 1967-76 average. The areas that normally contained the greatest number of ducks had the lowest pond indicies. Upland and overwater nesting cover was in extremely poor condition because of clearing and burning practices in the fall. May brought warm temperatures and clear skies to southern Manitoba, affording waterfowl early access to what little habitat was available.

Breeding Populations (Table B-6)

The survey was initiated on 4 May and continued through 27 May. Breeding population estimates were generally well below 1976 levels and the 1967-76 average. From 1976, total ducks were down 54%, dabblers down 60%, and divers down 35%. By species, mallards were down 53%, blue-winged teal down 55%, pintail down 90%, redhead up 12%, canvasback down 51%, and coot down 62%. From the previous 10-year average, total ducks were down 40%, dabblers down 50%, and divers were unchanged. By species, mallards were down 28%, blue-winged teal down 47%, pintail down 86%, redhead up 11%, canvasback down 18%, and coot down 37%. The lone drake index was an extremely low 68.2%, the lowest since 1962.

Summer Weather and Habitat Conditions

Periods of heavy rainfall in June and July provided above-normal precipitation for the period. Temperatures were generally above normal through June and below normal through the first 3 weeks of July. The July pond index was 15% below 1976 but 4% above the previous 10-year average. The most significant loss, a 61% decrease from 1976 and a 52% decrease from the 10-year average, was in stratum 39.

Habitat conditions were better than anticipated, due to the heavy precipitation. The rains and warm days served to maintain pond water levels and stimulate vegetative growth. Permanent bodies of water were in as good as or better shape than they were in May. A luxuriant growth of emergent vegetation provided excellent brood cover.

Production (Table B-6)

This survey was conducted from 7-18 July 1977. The total duck brood index for southern Manitoba was 16% below 1976 but 7% above the previous 10-year average. The average brood size was 5.6 ducklings per brood. This was 10% above last year and 5% above average. The coot brood index was 72% below 1976 and 48% below average. The total duck late-nesting index was 56% above 1976 but 20% below the previous 10-year average.

Montana

Data supplied by James F. Voelzer and Larry Mallard
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

Little precipitation and below-normal snowfall through mid-May combined to create poor habitat condi-

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tions in eastern Montana. Where water areas were encountered (mostly stock dams) the levels were low, water quality poor, and surrounding nesting cover severely lacking. Heavy rain began on 15 May and continued through 20 May. This much needed water permeated the dry soil, but produced no new water areas.

Breeding Population (Table B-7)

This survey was initiated on 9 May and terminated on 20 May. The total duck index was down 35% from the 1976 index and 34% from the 10-year average. Mallard and pintail were down from the 10-year average 16% and 50%, respectively. The only species recorded above the 10-year average were gadwall and mergansers (+36% and +70%, respectively). American coots were below the 1976 index and the 10-year average 72% and 44%, respectively. This is indicative of the poor quality of nesting habitat. A total lone drake index of 68% is in the normal range of values compared to those of the previous 10 years.

Summer Weather and Habitat Conditions

Hot and dry weather conditions during June and July caused further deterioration of the already poor nesting habitat. The July pond index decreased 41% from 1976, 26% from the 10-year average, and 32% since May 1977. Stock dams were generally low and steep-sided with little nesting cover in the vicinity. Permanent rivers and streams offered the best of the generally poor quality nesting habitat.

Production (Table B-7)

Survey flights were conducted on 3 and 4 July, but due to aircraft maintenance, the remainder of the survey was delayed until 12 through 16 July. The brood index was 47% below 1976 and 52% below the 10-year average. Average brood size was 4.7, 13% below 1976 and below 5.0 for the first time since 1968. The late-nesting index of 5.4 is 72% below 1976 and 73% below the 10-year average.

North and South Dakota

Data supplied by Edgar Ferguson and Douglas Searls
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

Below-normal spring precipitation in North Dakota through mid-May resulted in generally drier than normal conditions. The latter part of May brought substantial rainfall to most of North Dakota, which enhanced agricultural crop production but was probably too late to have a positive effect on waterfowl production. The North Dakota pond index decreased 47% in relation to 1976 and 42% in relation to the average. Stratum 43, which is located west of the Missouri River, showed increases of 26% compared to 1976 and 16% to the long-term average.

In southern and western South Dakota, heavy March rains resulted in some favorable conditions for both agricultural and waterfowl production, especially west of the Missouri River (stratum 44). In northern South Dakota drier conditions existed and habitat was similar to that described for North Dakota.

The pond index increased 10% from the 1976 survey but decreased 25% in relation to the long-term average.

Breeding Population (Tables B-8 and B-9)

The survey was conducted from 5 through 20 May 1977. In North Dakota the total duck index was down 38% from 1976 and 61% from the long-term average. Dabbling ducks decreased 35% in relation to 1976 and 60% compared to the previous 10-year average. Mallards dropped 18% from 1976 and 36% from the average. Wigeon declined 57% from the 1976 index and 30% from the average. Pintail decreased 56% from the 1976 index and 83% from the average index. Total diving ducks decreased 67% in relation to both 1976 and the long-term average. Coots decreased 37% from the 1976 index and 72% from the average.

The South Dakota survey results were similar to those in North Dakota, with a few exceptions. All species showed a decline in breeding population from the 10-year average. The total duck index decreased 29% from 1976 and 50% from the long-term average. Pintail (+17%) and shoveler (+13%) were the only duck species to show increases over 1976. The lone drake index for North Dakota was the lowest on record, and for South Dakota it was the second lowest since 1965.

Summer Weather and Habitat Conditions

In North Dakota, scattered rain showers fell from late May through July. This rain improved agricultural crop potential but did not enhance depleted subsoil moisture. It may have improved waterfowl habitat in some localized areas, but the July pond index was still the lowest on record. Only one small area northwest of Minot could be considered excellent habitat. The overall pond index was 52% below that of 1976 and 51% below the 10-year average.

South Dakota also received scattered rainfall throughout the summer, but rains came too late to help the pond index recover from the dry winter and spring conditions. The pond index approached the all-time low of 1974.

Production (Tables B-8 and B-9)

This survey was flown from 4 through 15 July 1977. In North Dakota, the duck brood index was up 6% from the 1976 totals, due primarily to the large concentration of broods in a small portion of stratum 45 and in a brood increase in stratum 43. The average brood size of 4.9 was the lowest ever recorded and may reflect the hostile environmental conditions under which many broods were raised. The late-nesting index was down 51% from 1976 and 73% from the average.

The South Dakota duck brood index increased 90% from the 1976 index but remained 32% below the long-term average. The late-nesting index increased from the 1976 percentage but was 62% below the 10-year average.

Minnesota

Data supplied by Robert L. Jessen
Minnesota Department of Natural Resources

Weather and Habitat Conditions

The spring of 1977 was extremely dry throughout the waterfowl production areas of Minnesota. The lowest number of ponds were recorded since establishing the present survey routes in 1968 (Table B-10). Topsoil moisture was considered critical in the State north of the line extending from the Twin Cities to Grand Forks. Late May and early June rains reversed the situation. By 6 June moisture was adequate statewide, with excess amounts northwest of Red Lakes. Small lakes in Clearwater County that were completely dry in May were restored to near normal levels in June. These rains improved pond water levels somewhat in western Minnesota, but runoff there was slight.

Breeding Population (Tables B-10 through B-13)

Survey flights began on 9 May and proceeded well until 19 May when weather grounded the aircraft. The survey was finally completed on 28 May. The total breeding duck index, as unadjusted for visibility bias, was 170,080 (Table B-11). Although this is the lowest total for the 3-year period beginning in 1975, the high-visibility correction factor boosts the total to 738,000, which is the highest for that period (Table B-12). The adjusted mallard breeding population continued to rise in 1977, totaling 218,000 birds.

A 9 June flight, designed to monitor nesting progress, revealed a higher than normal percentage of drakes still accompanied by hens. This may reflect some persistent nesting effort stimulated by late May and early June precipitation. Although June flights are not designed to estimate mallard abundance, the large numbers tallied in 1977 clearly exceeded all other years during which June flights were conducted. Drought was suspected to have influenced the distribution of these birds after abondonment of nesting efforts elsewhere.

Another possible cause for the high mallard index was the extremely low direct band recovery rate for Minnesota-reared birds, due to the delayed 1976 hunting season. The blue-winged teal index was also high and that, too, may be attributed to drought drawing birds to the lake region of Minnesota.

Washington

Data supplied by Richard Parker
Washington Department of Game

Weather and Habitat Conditions

A below-average snowfall in the mountains during the 1976–77 winter, combined with an unusually mild winter, resulted in a reduced spring runoff. This contributed to a reduction in pothole numbers and to the general low level of surface water in eastern Washington. The number of potholes present during the May production survey was down 46% and 40%, respectively, from 1976 and the 1967–76 average. The potholes in July decreased 62% and 58% from 1976 and the 10-year average, respectively. This was the lowest July pothole count in 15 years. Very little precipitation fell in June and July and temperatures remained above average, which accelerated the drying of the potholes.

Breeding Population (Table B-14)

Duck breeding populations were down 19% from 1976, but were 13% above the 10-year average (Table B-14). Dabbling ducks made up 76% of the duck breeding potential, down 16% from 1976, but up 10% from the average. The most notable increase was for wood duck (*Aix sponsa*), which was up 192%. Diving ducks decreased 29% from 1976 but remained 28% above the 1967–76 average.

Production (Tables B-15 and B-16)

The production index for all waterfowl was down 21% from 1976, but was about equal to the 10-year average (Table B-15). Immature birds made up a slightly smaller percentage (50%) of the index than in 1976 and for the 10-year average. All dabblers, with exception of the wood duck, were down in 1977. Mallard production was 24% under the 1976 index and the 10-year average. The Canada goose (*Branta canadensis*) production index was up 2% from 1976 (Table B-16). The Yakima River and Columbia Basin lakes showed the major increases. Geese nesting on the upper Columbia River experienced significant mortality due to coyote predation during a drawdown of the pools in March.

California

Data supplied by J. LeDonne, Frank Kozlik,
H. George, and D. Hinz
California Department of Fish and Game

Weather and Habitat Conditions

Habitat conditions in northeastern California were the driest noted in the nearly 30 years that these surveys have been flown. Nesting birds were confined to only those areas that are managed for wildlife and on those natural marshes and water impoundments that have permanent water supplies. Many of the normally stable water impoundments and marshes that produce birds in a normal runoff year were dry, and temporary waterfowl habitat created in good years was nonexistent. With the increased land values in California, native pasture and meadow lands are being replaced with cereal crops and alfalfa. Irrigation methods are also changing from a flood type to overhead sprinklers, which further reduces wetland habitat.

The Central Valley experienced the driest winter on record with rainfall about one-third normal. The only major storm came in early January. The spring migration was earlier than normal, probably because of the warm weather and poor habitat conditions on the wintering grounds.

Breeding Population Indices (Tables B-17 through B-23)

Survey flights in the Central Valley were conducted on 18 and 19 May; northeastern California was flown from 3 through 10 June. Comparable figures of nesting pairs of waterfowl indicate (1) nesting pairs of Canada geese increased 22% while an increase of 17% occurred in the fall population index; (2) ducks showed an increase of 28% in nesting pairs and a 23% increase was noted in the fall population index; and (3) nesting pairs and fall population index of coots were up 43%.

Colorado

Data supplied by Michael R. Szymczak
and Steven F. Steinert
Colorado Division of Wildlife

Weather and Habitat Conditions

A less than normal winter snowpack resulted in water conditions considered far below average for duck production. The San Luis Valley entered its fourth consecutive dry year. Only North Park and Brown's Park approached average conditions. Extremely heavy rains in mid-May in the South Platte Valley produced local flooding and nest destruction. Reduced water flows in the Yampa and Little Snake rivers resulted in a reduced number of islands for goose nesting and increased predation of established nests. In north central Colorado many of the reservoirs were not occupied at a normal rate. In spite of mild weather in early spring, goose nesting chronology was later than normal throughout most of the State.

Breeding Populations (Tables B-24 through B-29)

This survey was conducted from 21 April to 30 June. A variety of mechanical failures compounded by unrealistic mathematical projections resulted in the decision not to compute duck breeding pair estimates for most of Colorado. Only two survey areas provided comparable data (Table B-24). In the Yampa Valley, the total duck breeding pair index was up 2% from 1976 but down 21% from the long-term average. Brown's Park showed an increase of 70% from 1976 but remained 12% below the long-term average.

Results of the 1977 Canada goose production survey in north central Colorado are presented in Tables B-28 and B-29. Gosling production was down from 1975 levels in all trend areas except Denver. Total geese observed was down for the second consecutive year and was below the 8-year average.

Wisconsin

Data supplied by Joe Haug and Bruce Moss
Wisconsin Department of Natural Resources

Weather and Habitat Conditions

Drought conditions caused a 50% decrease in waterfowl use of types I through III wetlands. The number of these wetlands declined 54% since 1976. All wetland types combined were down 37% for 1977.

Breeding Population and Production (Table B-31)

Table B-31 indicates a 2% increase in total breeding ducks in Wisconsin from 1976 to 1977. Total ducks showed a 15% decline in the Southeast Central Region, a 9% decline in the Northern Low, and a 65% increase in the Northern High Region. Mallard and blue-winged teal populations experienced statewide decreases of 19% and 14%, respectively, in 1977. Mallard numbers are at an all-time low since the surveys were started in 1965. The South Central Region showed a 48% decline in mallard and a 51% decline in blue-winged teal since 1976, whereas the Northern High Region showed an increase in both mallards (+35%) and blue-winged teal (+64%). The Northern Low Region also experienced increases in mallards (+48%) and blue-winged teal (+160%).

Increases in mallard and blue-winged teal population in both the Northern High and Northern Low Regions of the State may have been the result of birds normally nesting in the Southeast Central Region moving to regions with more permanently available water.

Waterfowl Harvest Surveys

Data supplied by Samuel M. Carney, Michael F. Sorensen, and
Elwood M. Martin
U.S. Fish and Wildlife Service

This report provides estimates of waterfowl hunting activity and harvest during the 1976 season and compares

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them with estimates for the 1975 season. Estimates for both years were derived from information obtained from three sources: (1) the Postal Service's report of duck stamp sales, (2) the U. S. Fish and Wildlife Service's Questionnaire Survey of Waterfowl Hunters, and (3) the Service's Waterfowl Parts Collection Survey.

Procedures

An explanation of procedures employed in estimating hunter harvest and activity may be found in *Special Scientific Report – Wildlife* No. 138. Similar sample selection, stratification procedures, and computations subsequently have been followed. Major adjustments to data include those for activity by hunters less than 16 years old, who are not surveyed because they are not required to purchase duck stamps (Table C-1), and those used to compensate for memory and prestige biases (Table C-2).

Administrative Reports

Data in this report are based on final duck stamp sales information. In the Administrative Report "Waterfowl Harvest and Hunter Activity in the United States during the 1976 Hunting Season" (31 May 1977), preliminary estimates based on duck stamp sales through the third quarter of fiscal year 1977 were made available for the annual waterfowl regulations meetings in early August 1977. Age and sex composition are not included herein, but were presented in the Administrative Report "Age and Sex Composition of Ducks and Geese Harvested in the 1976 Hunting Season in Comparison with Prior Years" (2 June 1977).

Results

Bias-adjusted estimates of the total U. S. harvest of ducks (by species), coots, and unretrieved kill are presented in Table C-3. Similar estimates relating to geese are in Table C-4. Detailed State-level estimates of the duck, goose, and coot harvest, migratory waterfowl hunting-stamp sales, and hunter activity and success may be found in Tables C-5 through C-9. These results include hunter activity and harvest during regular and special seasons combined. Four States have a September teal season; the harvest and species composition during that season is also shown separately in Table C-10. Estimates are presented as derived to assure agreement between totals and their component parts. This does not imply precision to the last hunter, duck, or day.

The following is a resume of 1976 hunter activity and harvest success by flyway, showing degree of change from 1975.

Atlantic Flyway. – Duck stamp sales totaled 435,932 (-1%), and 2,090,148 ducks (+12%), 125,940 coots (-24%), and 379,633 geese (-4%) were harvested during 2,893,085 hunter-days (+1%). Those persons buying duck stamps for hunting average 6.6 days afield (+3%) and retrieved an average of 4.8 ducks (+14%) and 0.9 goose (-2%) each. Estimates for the Atlantic Flyway are recorded in Table C-5.

Mississippi Flyway. – Duck stamp sales totaled 854,924 (-7%), and 6,068,492 ducks (-8%), 598,709 coots (-7%), and 463,866 geese (-10%) were harvested during 6,374,194 hunter-days (-11%). Those persons buying duck stamps for hunting averaged 7.1 days afield (-4%) and retrieved an average of 7.0 ducks (-1%) and 0.5 goose (-3%) each. Estimates for the Mississippi Flyway are recorded in Table C-6.

Central Flyway. – Duck stamp sales totaled 429,661 (no change) and 2,769,418 ducks (-6%), 60,625 coots (-30%), and 463,092 geese (-21%) were harvested during 3,012,036 hunter-days (-6%). Those persons buying duck stamps for hunting averaged 6.6 days afield (-5%) and retrieved an average of 6.2 ducks (-5%) and 1.1 geese (-20%) each. Estimates for the Central Flyway are recorded in Table C-7.

Pacific Flyway. – Duck stamp sales totaled 388,340 (-3%), and 4,152,787 ducks (+3%), 143,286 coots (-24%), and 371,682 geese (+16%) were harvested during 2,937,816 hunter-days (-5%). Those persons buying duck stamps for hunting averaged 7.1 days afield (-2%) and retrieved an average of 10.4 ducks (+6%) and 0.9 goose (+19%) each. Estimates for the Pacific Flyway are recorded in Table C-8.

Alaska. – Duck stamp sales totaled 18,455 (+13%), and 109,909 ducks (+56%), 1,105 coots (+34%), and 13,979 geese (+21%) were harvested during 89,817 hunter-days (+44%). Those persons buying duck stamps for hunting averaged 4.5 days afield (+20%) and retrieved an average of 5.7 ducks (+30%) and 0.7 goose (+1%) each. Estimates for Alaska are recorded in Table C-9.

United States. – Duck stamp sales totaled 2,127,312 (-4%), and 15,190,754 ducks (-2%), 929,665 coots (-14%), and 1,692,252 geese (-7%) were harvested during 15,306,948 hunter-days (-7%). Those persons buying duck stamps for hunting averaged 6.9 days afield (-3%) and retrieved an average of 7.0 ducks (+2%) and 0.8 goose (-4%) each. Estimates for the United States are recorded in Table C-9.

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APPENDIX

APPENDIX A. WATERFOWL WINTER SURVEY TABLES

TABLE A-1. Winter survey, January 1977--waterfowl by species and flyway (figures in nearest hundreds; tr = 50).

Species	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	Total
Ducks:					
Dabblers:					
Mallard	1,314,100	2,252,400	3,133,200	278,500	6,978,200
Black duck	100	tr.	100,600	261,900	362,600
Mottled duck	---	48,400	121,100	300[a]	169,800
Gadwall	22,200	287,900	945,200	41,000	1,296,300
American wigeon	664,100	221,800	241,400	94,800	1,222,100
Green-winged teal	178,800	636,600	861,800	51,400	1,728,600
Blue-winged teal[b]	1,000	600	92,200	23,800	117,600
Northern Shoveler	755,800	79,100	106,900	15,100	956,900
Pintail	3,619,200	1,351,500	543,900	106,400	5,621,000
Subtotal	6,555,300	4,878,300	6,146,300	873,200	18,453,100
Divers:					
Redhead	22,700	500,500	18,900	161,800	703,900
Canvasback	88,300	12,800	53,600	141,500	296,200
Scaup	111,900	63,900	624,700	439,200	1,239,700
Ring-necked duck	2,700	9,500	64,100	40,800	117,100
Goldeneye	49,000	14,300	30,400	42,100	135,800
Bufflehead	43,800	3,500	3,600	72,100	123,000
Ruddy duck	94,900	4,000	4,500	68,100	171,500
Subtotal	413,300	608,500	799,800	965,600	2,787,200
Miscellaneous:					
Eider/Scoter	107,200	---	300	170,900	278,400
Oldsquaw	500	---	3,600	18,700	22,800
Merganser	24,400	98,700	15,000	70,800	208,900
Subtotal	132,100	98,700	18,900	260,400	510,100
Unidentified & Other:	20,500	54,900	58,400	40,500	174,300
Total ducks	7,121,200	5,640,400	7,023,400	2,139,700	21,924,700

TABLE A-1. Continued

Species	Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway	Total
Geese:					
Blue/Snow goose	465,400	612,600	571,300	132,700	1,782,000
Ross' goose	37,800	---	50,400	---	88,200
White-fronted goose	49,000	29,600	---	---	78,600
Canada goose	259,700	431,200	904,400	923,600	2,518,900
Cackling goose	56,400	---	---	---	56,400
Total geese	868,300	1,073,400	1,526,100	1,056,300	4,524,100
Brant:					
Black brant	15,700	---	---	---	15,700
American brant	---	---	---	73,600	73,600
Total brant	15,700	---	---	73,600	89,300
Swans:					
Mute swan	---	---	---	2,200	2,200
Whistling swan	47,300	tr.	tr.	76,200	123,400
Trumpeter swan	1,100	100	---	---	1,200
Total swans	48,400	100	tr.	78,400	126,900
Coots:					
American coot	619,700	275,500	1,200,800	480,400	2,576,400
Grand total	8,673,300	6,989,400	9,750,300	3,828,400	29,241,400

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a/ Florida duck.

b/ Includes cinnamon teal.

TABLE A-2. Winter survey, January 1977--waterfowl by State and flyway (figures in nearest hundreds; tr = 50).

State	Ducks	Geese[a]	Brant	Swans	Coots	Total
Pacific Flyway:						
Washington	724,400	94,100	13,600	1,600	34,400	868,100
Oregon	428,000	94,700	2,100	6,400	18,900	550,100
Idaho	302,700	24,400	---	600	17,400	345,100
Montana	63,800	2,600	---	300	1,200	67,900
Wyoming	3,100	900	---	100	---	4,100
California	5,482,000	631,600	---	37,900	530,700	6,682,200
Nevada	28,700	7,700	---	1,100	7,600	45,100
Utah	53,500	6,700	---	300	7,400	67,900
Colorado	16,600	1,400	---	---	---	18,000
Arizona	5,400	1,600	---	---	1,900	8,900
New Mexico	13,500	500	---	---	100	14,100
Flyway total	7,121,700	866,200	15,700	48,300	619,600	8,671,500
Central Flyway:						
Montana	55,900	900	---	---	---	56,800
North Dakota	5,000	100	---	---	---	5,100
South Dakota	81,400	18,100	---	100	---	99,600
Wyoming	69,400	8,300	---	---	---	77,700
Nebraska	377,000	29,400	---	---	tr.	406,400
Colorado	231,400	119,700	---	---	---	351,100
Kansas	568,700	60,000	---	---	---	628,700
New Mexico	197,000	48,400	---	tr.	3,200	248,600
Oklahoma	274,700	89,300	---	---	11,300	375,300
Texas	3,779,900	699,100	---	---	260,900	4,739,900
Flyway total	5,640,400	1,073,300	---	100	275,400	6,989,200

Table A-2. Continued

State	Ducks	Geese[a]	Brant	Swans	Coots	Total
Mississippi Flyway:						
Minnesota	27,900	26,400	---	tr.	tr.	54,300
Wisconsin	22,100	25,700	---	---	---	47,800
Michigan	26,600	12,900	---	---	100	39,600
Iowa	114,500	31,600	---	---	---	146,100
Illinois	513,900	378,500	---	tr.	---	892,400
Indiana	33,100	10,100	---	---	---	43,200
Ohio	54,300	24,700	---	tr.	400	79,400
Missouri	287,600	383,800	---	tr.	2,400	673,800
Kentucky	15,400	66,400	---	---	200	82,000
Tennessee	476,400	71,100	---	---	7,500	555,000
Arkansas	300,800	8,500	---	---	3,600	312,900
Louisiana	4,837,300	454,700	---	---	1,149,900	6,441,900
Mississippi	207,400	5,000	---	---	11,800	224,200
Alabama	106,100	26,700	---	---	44,900	177,700
Flyway total	7,023,400	1,526,100	---	tr.	1,200,800	9,770,300
Atlantic Flyway:						
Maine	68,200	700	---	---	---	68,900
New Hampshire	700	100	---	---	---	800
Vermont	800	200	---	---	---	1,000
Massachusetts	105,300	8,200	2,300	400	---	116,200
Connecticut	26,000	2,300	---	1,200	tr.	29,500
Rhode Island	49,600	1,100	---	300	---	51,000
New York	179,500	8,500	13,600	600	400	202,600
Pennsylvania	25,400	42,300	---	100	100	67,900
New Jersey	199,100	19,300	26,900	500	200	246,000
West Virginia	1,600	400	---	---	---	2,000
Maryland	187,300	558,400	2,200	27,600	1,000	776,500
Delaware	57,500	136,100	6,300	400	---	200,300
Virginia	186,200	143,300	21,700	4,500	32,200	387,900
North Carolina	350,700	120,200	500	43,300	80,100	594,800
South Carolina	288,100	13,200	---	tr.	38,200	339,500
Georgia	49,100	600	---	---	26,600	76,300
Florida	364,800	1,300	---	---	301,000	667,100
Flyway total	2,139,900	1,056,200	73,500	78,900	479,800	3,828,300

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[a] Mid-December 1976 counts used for all species of Geese in the Central Flyway.

TABLE A-3. Mexico Mid-winter survey, 1977 (figures in nearest hundreds).

Species	Western Mexico	Central Highlands & Lower West Coast	Eastern Mexico	Total Mexico
Ducks:				
Dabblers:				
Mallard	200	4,000	300	4,500
Mottled duck	---	---	2,000	2,000
Mexican duck	---	7,400	---	7,400
Gadwall	7,100	8,700	38,700	54,500
American wigeon	49,400	17,600	159,400	226,400
Green-winged teal[a]	189,000	71,500	88,700	349,200
Blue-winged teal[a]	81,900	12,500	326,600	421,000
Northern shoveler	91,600	39,200	74,900	205,700
Pintail	544,500	101,000	381,500	1,027,000
Fulvous tree duck	7,200	400[b]	24,800[b]	42,800[b]
Black-bellied tree duck	10,400			
Subtotal	981,300	262,300	1,096,900	2,340,500
Divers:				
Redhead	32,500	800	266,100	299,400
Canvasback	2,100	5,200	4,400	11,700
Scaup	110,600	18,900	438,200	567,700
Ring-necked duck	---	6,800	37,000	43,800
American goldeneye	100	---	---	100
Bufflehead	5,200	100	200	5,500
Ruddy duck	46,600	1,100	13,000	60,700
Subtotal	197,100	32,900	758,900	988,900
Miscellaneous:				
Mergansers	21,100	300	5,600	27,000
Scoters	18,500	---	---	18,500
Unidentified	---	139,500	---	139,500
Total ducks	1,218,000	435,000	1,861,400	3,514,400
Geese:				
Snow	4,200	51,400	500	56,100
White-fronted	1,100	14,900	8,400	24,400
Canada	---	tr.	1,500	1,500
Brant	130,800	---	---	130,800
Total Geese	136,100	66,300	10,400	212,900
Coots:				
American Coots	106,900	55,600	675,600	838,100

[a] Includes Cinnamon Teal.

[b] Includes Black-bellied tree duck.

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APPENDIX B. WATERFOWL BREEDING GROUND SURVEY TABLES

TABLE B-1. Alaska--1977 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE		1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	Not applicable				JULY PONDS	Not applicable			
					DUCK BROOD INDEX	Not applicable			
					AVG. BROOD SIZE	Not applicable			
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	392.0	+155	188.1	+108		Not applicable			
BLACK DUCK	0.0	n.c.	0.0	n.c.					
GADWALL	.2	-78	1.5	-87					
AMERICAN WIGEON	686.4	+99	457.7	+50					
GREEN WINGED TEAL	227.6	+11	272.6	-16					
BLUE-WINGED TEAL	2.8		1.5	+87					
NORTHERN SHOVELER	217.6	+136	83.0	+162					
PINTAIL	2,657.4	+130	1,153.2	+130					
SUBTOTAL	4,184.0	+115	2,157.6	+94					
DIVERS:									
REDHEAD	17.1	+17,000	.1	+17,000					
CANVASBACK	167.2	+249	72.2	+132					
SCAUP	1,748.0	+17	1,179.8	+48					
RING-NECKED	0.0	n.c.	0.0	n.c.					
AMERICAN GOLDENEYE	142.6	+6	144.5	-1					
BUFFLEHEAD	72.8	-38	69.7	+4					
SUBTOTAL	2,147.7	+20	1,466.3	+46					
MISCELLANEOUS:									
OLDSQUAW	990.0	+99	559.9	+77					
EIDER	22.6	+27	27.4	-18					
SCOTER	434.7	+16	374.1	-16					
RUDDY DUCK	0.0	n.c.	0.0	n.c.					
MERGANSER	11.9	+284	5.0	+138					
SUBTOTAL	1,459.2	+63	966.4	+51					
TOTAL DUCKS	7,790.9	+68	4,590.3	+70					
COOTS									
AMERICAN COOT	0.0	n.c.	0.0	n.c.					
GRAND TOTAL	7,790.9	+68	4,590.3	+70					

TABLE B-2. Northern Alberta and the Northwest Territories--1977 waterfowl breeding ground survey results.

WATERFOWL BREEDING PAIR SURVEY
(NUMBERS IN THOUSANDS)

	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS		Not applicable		
		BREEDING POPULATION ESTIMATES		
DUCKS:				
DABBLERS:				
MALLARD	1,260.1	+177	1,106.1	+14
BLACK DUCK	0.0	-100	0.1	-100
GADWALL	83.0	+548	22.8	+264
AMERICAN WIGEON	827.3	+54	683.2	+21
GREEN-WINGED TEAL	610.9	+89	632.4	-3
BLUE-WINGED TEAL	809.7	+388	122.8	+559
NORTHERN SHOVELER	410.4	+270	146.9	+179
PINTAIL	817.0	+106	412.5	+98
SUBTOTAL	4,818.4	+126	3,126.8	+54
DIVERS:				
REDHEAD	64.3	+270	34.1	+89
CANVASBACK	49.1	+30	53.4	-8
SCAUP	3,577.7	+13	3,883.3	-8
RING-NECKED	198.4	+167	106.4	+86
AMERICAN GOLDENEYE	139.2	+26	87.7	+59
BUFFLEHEAD	406.6	+1	436.1	-7
SUBTOTAL	4,435.3	+16	4,601.0	-4
MISCELLANEOUS:				
OLDSQUAW	632.0	+10	785.8	-20
EIDER	0.0	n.c.	0.0	n.c.
SCOTER	863.4	+28	790.8	+9
RUDDY DUCK	65.0	+2,854	31.6	+106
MERGANSER	225.0	+68	61.5	+266
SUBTOTAL	1,785.4	+29	1,669.7	+7
TOTAL DUCKS	11,039.1	+51	9,397.5	+17
COOTS				
AMERICAN COOT	550.0	+1,592	66.4	+728
GRAND TOTAL	11,589.1	+57	9,463.9	+22

WATERFOWL PRODUCTION SURVEY
(NUMBERS IN THOUSANDS)

	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
JULY PONDS	Not applicable			
DUCK BROOD INDEX	Not applicable			
AVG. BROOD SIZE	Not applicable			
	LATE-NESTING INDEXES			
	Not applicable			

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TABLE B-3. Northern Saskatchewan and Northern Manitoba--1977 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE		1977	% CHANGE FROM 1974	1964-1974[a] AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS		Not applicable			JULY PONDS		Not applicable		
					DUCK BROOD INDEX	132.2	+31	149.8	-18
					AVG. BROOD SIZE	5.441	-12	5.561	-2
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	965.0	-8	1,057.2	-9		33.8	+91	27.2	+24
BLACK DUCK	22.0	+528	5.7	+286		0.0	n.c.	.6	-100
GADWALL	65.9	+180	66.3	-1		1.7	n.c.	2.0	-15
AMERICAN WIGEON	249.0	-2	312.1	-20		7.7	+114	6.8	+13
GREENWINGED TEAL	452.2	+9	283.3	+60		6.1	-19	3.1	+97
BLUE-WINGED TEAL	440.3	+15	329.9	+33		3.6	+177	2.4	+50
NORTHERN SHOVELER	87.6	+323	47.0	+86		.8	+167	1.3	-38
PINTAIL	81.1	+13	93.2	-13		1.6	+14	3.6	-56
SUBTOTAL	2,363.1	+6	2,194.7	+8		55.3	+65	47.0	+18
DIVERS:									
REDHEAD	50.8	+47	66.4	-23		.2		1.5	-87
CANVASBACK	42.1	+14	48.6	-13		.7		.7	n.c.
SCAUP	687.3	+2	877.3	-22		18.0	+25	21.0	-14
RING-NECKED	230.8	-32	338.5	-32		15.5	+163	13.8	+12
AMERICAN GOLDENEYE	293.8	-24	196.5	+50		3.2	-24	2.0	+60
BUFFLEHEAD	196.5	-28	175.4	+12		10.2	+12	5.4	+89
SUBTOTAL	1,501.3	-14	1,702.7	-12		47.8	+42	44.4	+8
MISCELLANEOUS:									
OLDSQUAW	3.4	+42	.2	+1,600		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	83.4	+12	63.2	+32		3.5	+30	2.6	+35
RUDDY DUCK	9.5	+34	26.9	-65		.7	+133	.8	-12
MERGANSER	294.1	+53	240.5	+22		9.2	+48	8.0	+15
SUBTOTAL	390.4	+42	330.8	+18		13.4	+46	11.4	+18
TOTAL DUCKS	4,254.8	n.c.	4,228.2	+1		116.5	+53	102.8	+13
COOTS:									
AMERICAN COOT	366.6	+384	127.0	+189					
GRAND TOTAL	4,621.4	+7	4,355.2	+6		116.5	+53	102.8	+13

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[a] 1967 and 1972 not included in average.

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TABLE B-4. Southern Alberta--1977 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE		1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	422.7	-49	769.9	-45	JULY PONDS	341.4	-10	495.2	-31
					DUCK BROOD INDEX	78.1	-34	116.8	-33
					AVG. BROOD SIZE	4.771	-10	5.447	-12
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	853.1	-41	1,498.5	-43		15.3	-54	18.8	-18
BLACK DUCK	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
GADWALL	392.3	+13	382.6	+2		2.1	-77	8.6	-76
AMERICAN WIGEON	194.9	-45	439.0	-56		5.2	-30	6.0	-13
GREEN-WINGED TEAL	328.0	+4	268.9	+22		4.9	-61	7.7	-36
BLUE-WINGED TEAL	750.9	-10	713.2	+5		4.3	-86	9.6	-55
NORTHERN SHOVELER	220.8	-34	449.7	-51		5.6	-10	6.0	-7
PINTAIL	345.7	-67	1,425.2	-76		3.4	-78	9.2	-63
SUBTOTAL	3,085.7	-34	5,177.1	-40		40.8	-64	65.9	-38
DIVERS:									
REDHEAD	175.4	-54	151.5	+16		1.4	-42	1.7	-18
CANVASBACK	105.8	-15	75.8	+40		1.9	-39	1.0	+90
SCAUP	477.6	-28	403.3	+18		15.6	-65	18.0	-13
RING-NECKED	7.7	+75	6.2	+24		.4	-33	.5	-20
AMERICAN GOLDENEYE	4.4	-86	15.2	-71		.2	-50	.2	n.c.
BUFFLEHEAD	32.9	-26	38.7	-15		.6	-33	.2	+200
SUBTOTAL	803.8	-36	690.7	+17		20.1	-62	21.6	-7
MISCELLANEOUS:									
OLDSQUAW	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	16.2	-44	20.0	-19		.7	-42	.6	+17
RUDDY DUCK	99.2	+202	81.4	+22		2.0	-60	5.6	-64
MERGANSER	3.0		2.6	+15		0.0	-100	.1	-100
SUBTOTAL	118.4	+91	104.0	+14		2.7	-58	6.3	-57
TOTAL DUCKS	4,007.9	-33	5,971.8	-33		63.6	-63	93.8	-32
COOTS									
AMERICAN COOT	285.4	-44	349.0	-18					
GRAND TOTAL	4,293.3	-34	6,320.8	-32		63.6	-63	93.8	-32

TABLE B-5. Southern Saskatchewan--1977 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE		1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	1,155.4	-47	2,123.6	-46	JULY PONDS	718.1	-48	1,072.8	-33
					DUCK BROOD INDEX	144.6	-16	139.2	+4
					AVG. BROOD SIZE	5.296	+17	5.066	+4
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	2,866.8	-5	2,520.5	+14		63.4	-9	62.9	+1
BLACK DUCK	0.0	n.c.	.2	-100		0.0	n.c.	0.0	n.c.
GADWALL	600.8	-16	588.1	+2		34.6	-30	26.2	+32
AMERICAN WIGEON	460.6	-30	774.3	-41		8.3	-30	13.9	-40
GREEN-WINGED TEAL	222.3	-30	343.0	-35		4.5	-68	9.1	-50
BLUE-WINGED TEAL	1,631.2	-8	1,695.1	-4		37.4	+8	23.3	+60
NORTHERN SHOVELER	422.7	-48	741.3	-43		7.7	-73	12.5	-38
PINTAIL	672.5	-74	1,908.4	-65		24.2	-12	26.4	-8
SUBTOTAL	6,876.9	-30	8,570.9	-20		180.1	-24	174.3	+3
DIVERS:									
REDHEAD	227.6	-15	201.5	+13		7.3	-50	6.5	+12
CANVASBACK	253.5	-10	201.9	+26		10.5	+98	3.9	+169
SCAUP	702.2	+43	331.0	+112		22.6	-7	14.0	+61
RING-NECKED	45.0	-8	22.5	+100		2.0	-39	1.4	+43
AMERICAN GOLDENEYE	73.1	+306	16.6	+340		0.0	n.c.	.3	-100
BUFFLEHEAD	52.5	+57	36.9	+42		3.1	-20	1.9	+63
SUBTOTAL	1,353.9	+19	810.4	+67		45.5	-11	28.0	+62
MISCELLANEOUS:									
OLDSQUAW	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	5.1	+292	4.2	+21		1.5		.3	+400
RUDDY DUCK	122.7	+30	94.3	+30		17.1	-41	15.7	+9
MERGANSER	2.1	-38	1.8	+17		0.0	n.c.	.1	-100
SUBTOTAL	129.9	+31	100.3	+30		18.6	-36	16.1	+16
TOTAL DUCKS	8,360.7	-24	9,481.6	-12		244.2	-23	218.4	+12
COOTS									
AMERICAN COOT	440.0	-70	834.2	-47					
GRAND TOTAL	8,800.7	-30	10,315.8	-15		244.2	-23	218.4	+12

TABLE B-6. Southern Manitoba--1977 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE		1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	444.2	-45	702.2	-37	JULY PONDS	331.6	-15	317.4	+4
					DUCK BROOD INDEX	25.8	-16	24.2	+7
					AVG. BROOD SIZE	5.639	+10	5.360	+5
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	252.7	-53	352.9	-28		13.2	+181	11.2	+18
BLACK DUCK	0.0	n.c.	.3	-100		.5		0.0	
GADWALL	60.1	-18	76.4	-21		.2	-60	1.3	-85
AMERICAN WIGEON	17.3	-49	51.9	-67		.2	n.c.	1.8	-89
GREEN-WINGED TEAL	35.3	-68	109.9	-68		.8	-27	.8	n.c.
BLUE-WINGED TEAL	292.9	-55	556.1	-47		6.2	-1,967	4.1	+51
NORTHERN SHOVELER	39.0	-75	102.4	-62		0.0	-100	.8	-100
PINTAIL	26.1	-90	185.8	-86		.4	-69	1.4	-71
SUBTOTAL	723.4	-60	1,435.7	-50		21.5	+150	21.4	n.c.
DIVERS:									
REDHEAD	93.2	+12	83.8	+11		0.0	-100	.9	-100
CANVASBACK	54.1	-51	65.8	-18		.1	-75	.6	-83
SCAUP	129.7	-38	115.3	+12		.5	+150	1.8	-72
RING-NECKED	10.4	-45	10.4	n.c.		0.0	-100	.3	-100
AMERICAN GOLDENEYE	4.9	-86	18.2	-73		0.0	-100	.1	-100
BUFFLEHEAD	17.8	-21	16.4	+8		0.0	n.c.	.2	-100
SUBTOTAL	310.1	-35	309.9	n.c.		.6	-57	3.9	-85
MISCELLANEOUS:									
OLDSQUAW	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	.7	-71	.9	-22		0.0	n.c.	0.0	n.c.
RUDDY DUCK	67.7	-24	105.6	-36		1.5	-70	4.4	-66
MERGANSER	5.6	+87	3.4	+65		0.0	n.c.	0.0	n.c.
SUBTOTAL	74.0	-21	109.9	-33		1.5	-70	4.4	-66
TOTAL DUCKS	1,107.5	-54	1,855.5	-40		23.6	+56	29.7	-20
COOTS									
AMERICAN COOT	180.1	-62	287.9	-37					
GRAND TOTAL	1,287.6	-55	2,143.4	-40		23.6	+56	29.7	-20

TABLE B-7. Montana--1977 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE		1977	% CHANGE FROM 1976	1966-1976[a] AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	192.6	-1	244.3	-21	JULY PONDS	131.8	-41	177.8	-26
					DUCK BROOD INDEX	24.0	-47	49.9	-52
					AVG. BROOD SIZE	4.699	-13	5.203	-10
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	332.6	-31	395.8	-16		1.5	-82	8.2	-82
BLACK DUCK	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
GADWALL	103.6	+87	76.0	+36		1.8	-44	1.5	+20
AMERICAN WIGEON	77.0	-23	180.0	-57		1.1	-35	3.9	-72
GREEN-WINGED TEAL	11.2	-71	77.2	-85		0.0	n.c.	.4	-100
BLUE-WINGED TEAL	93.8	-55	147.2	-36		0.0	-100	1.3	-100
NORTHERN SHOVELER	55.6	-46	82.1	-32		0.0	-100	.7	-100
PINTAIL	118.5	-48	239.8	-50		.4	-86	2.0	-80
SUBTOTAL	792.3	-34	1,198.1	-34		4.8	-73	18.0	-73
DIVERS:									
REDHEAD	8.7	+18	9.1	-4		0.0	-100	.1	-100
CANVASBACK	3.8	-80	6.7	-43		0.0	-100	.4	-100
SCAUP	27.3	-30	48.0	-43		.3	-62	1.0	-70
RING-NECKED	.3	-82	1.6	-81		.4		.1	+300
AMERICAN GOLDENEYE	.7		1.3	-46		0.0	n.c.	.1	-100
BUFFLEHEAD	0.0	-100	.9	-100		0.0	n.c.	0.0	n.c.
SUBTOTAL	40.8	-40	67.6	-40		.7	-50	1.7	-59
MISCELLANEOUS:									
OLDSQUAW	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
RUDDY DUCK	4.1	-39	15.1	-73		0.0	-100	.4	-100
MERGANSER	1.7	+240	1.0	+70		0.0	n.c.	.1	-100
SUBTOTAL	5.8	-19	16.1	-64		0.0	-100	.5	-100
TOTAL DUCKS	838.9	-35	1,281.8	-34		5.5	-72	20.2	-73
COOTS									
AMERICAN COOT	18.8	-72	33.9	-44					
GRAND TOTAL	857.7	-37	1,315.7	-35					

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[a] 1971 not flown

TABLE B-8. North Dakota--1977 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE		1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	339.5	-47	582.6	-42	JULY PONDS	175.0	-52	360.3	-51
					DUCK BROOD INDEX	29.9	+6	41.6	-28
					AVG. BROOD SIZE	4.892	-14	5.751	-15

	BREEDING POPULATION ESTIMATES				LATE-NESTING INDEXES			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
DUCKS:								
DABBLERS:								
MALLARD	374.6	-18	586.4	-36	5.0	-48	15.9	-68
BLACK DUCK	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
GADWALL	168.5	+4	292.5	-42	2.3	-44	13.0	-82
AMERICAN WIGEON	97.1	-57	138.5	-30	.6	-33	1.0	-40
GREEN-WINGED TEAL	18.9	-57	67.9	-72	.2	-50	.9	-78
BLUE-WINGED TEAL	282.1	-45	905.4	-69	2.0	+43	10.0	-80
NORTHERN SHOVELER	84.6	-22	254.8	-67	0.0	-100	.4	-100
PINTAIL	91.1	-56	527.7	-83	2.1	-46	2.3	-9
SUBTOTAL	1,116.9	-35	2,773.2	-60	12.2	-43	43.5	-72
DIVERS:								
REDHEAD	36.8	-75	149.5	-75	.5	n.c.	1.3	-62
CANVASBACK	13.9	-9	33.1	-58	.3		0.0	
SCAUP	17.4	-72	43.4	-60	0.0	n.c.	.4	-100
RING-NECKED	9.3	+22	5.4	+72	0.0	n.c.	0.0	n.c.
AMERICAN GOLDENEYE	0.0	n.c.	.1	-100	0.0	n.c.	0.0	n.c.
BUFFLEHEAD	0.0	-100	.5	-100	0.0	n.c.	0.0	n.c.
SUBTOTAL	77.4	-67	232.0	-67	.8	+60	1.7	-53
MISCELLANEOUS:								
OLDSQUAW	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
SCOTER	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
RUDDY DUCK	20.5	-10	134.2	-85	.7	-88	5.8	-88
MERGANSER	0.0	n.c.	.4	-100	0.0	n.c.	0.0	n.c.
SUBTOTAL	20.5	-10	134.6	-85	.7	-88	5.8	-88
TOTAL DUCKS	1,214.8	-38	3,139.8	-61	13.7	-51	51.0	-73
COOTS								
AMERICAN COOT	91.8	-37	323.0	-72				
GRAND TOTAL	1,306.6	-38	3,462.8	-62	13.7	-51	51.0	-73

TABLE B-9. South Dakota--1977 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE		1977	% CHANGE FROM 1976	1967-1976 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	276.1	+10	368.0	-25	JULY PONDS	162.6	-20	255.7	-36
					DUCK BROOD INDEX	20.7	+90	30.4	-32
					AVG. BROOD SIZE	4.936	+4	5.065	-2
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	267.2	-19	424.8	-37		5.3	-4	14.2	-63
BLACK DUCK	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
GADWALL	69.7	-18	159.8	-56		1.8	-40	7.7	-77
AMERICAN WIGEON	55.8	-68	95.0	-41		2.2	+83	2.1	+5
GREEN-WINGED TEAL	24.5	-53	51.4	-52		0.0	-100	.6	-100
BLUE-WINGED TEAL	318.8	-34	663.5	-52		3.0	+173	6.3	-52
NORTHERN SHOVELER	77.5	+13	148.2	-48		.4		.7	-43
PINTAIL	130.8	+17	259.6	-50		1.1	-62	2.6	-58
SUBTOTAL	944.3	-28	1,802.3	-48		13.8	-1	34.2	-60
DIVERS:									
REDHEAD	12.8	+42	44.4	-71		0.0	n.c.	.5	-100
CANVASBACK	3.8	+6	8.4	-55		0.0	-100	.1	-100
SCAUP	13.8	-76	30.6	-55		.2		.2	n.c.
RING-NECKED	.5	-72	1.4	-64		0.0	n.c.	0.0	n.c.
AMERICAN GOLDENEYE	0.0	n.c.	.1	-100		0.0	n.c.	0.0	n.c.
BUFFLEHEAD	0.0	n.c.	.3	-100		0.0	n.c.	0.0	n.c.
SUBTOTAL	30.9	-57	85.3	-64		.2	-33	.8	-75
MISCELLANEOUS:									
OLDSQUAW	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	0.0	n.c.	0.0	n.c.		0.0	n.c.	.1	-100
RUDDY DUCK	5.6	-10	61.2	-91		.2		2.2	-91
MERGANSER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SUBTOTAL	5.6	-10	61.2	-91		.2		2.3	-91
TOTAL DUCKS	980.8	-29	1,948.8	-50		14.2	n.c.	37.3	-62
COOTS									
AMERICAN COOT	108.1	+20	126.7	-15					
GRAND TOTAL	1,088.9	-26	2,075.5	-48		14.2	n.c.	37.3	-62

TABLE B-10. Minnesota--expanded estimates of ponds within survey strata as tallied during the May waterfowl breeding ground surveys.

Year	Strata			Total
	I	II	III	
1975	51,543	70,211	84,418	206,172
1976	32,333	35,896	41,615	109,844
1977	18,037	15,135	21,688	54,860

TABLE B-11. Minnesota--waterfowl breeding population indices for 1977 by strata.

Species	Strata[a]				State
	1	2	3	4 Total	
Ducks					
Dabblers:					
Mallard	16,077	17,459	27,219	35,409	96,164
Black duck	---	---	---	119	119
Gadwall	181	---	175	599	955
American wigeon	452	476	2,107	4,973	8,008
Green-winged teal	---	---	175	---	175
Blue-winged teal	10,406	9,653	17,473	4,134	41,666
Shoveler	120	119	2,546	599	3,384
Pintail	242	---	526	239	1,007
Wood duck	1,327	834	2,107	1,917	6,185
Subtotal	28,805	28,541	52,328	47,989	157,663
Divers:					
Redhead	512	119	351	419	1,401
Canvasback	1,357	---	351	119	1,827
Ring-necked duck	995	1,072	790	1,198	4,055
Ruddy duck	30	476	1,053	---	1,559
Common Goldeneye	---	---	---	239	239
Merganser	---	---	176	---	176
Scaup	422	715	1,844	179	3,160
Subtotal	3,316	2,382	4,565	2,154	12,417
Total ducks	32,121	30,923	56,893	50,143	170,080
Coots:	5,248	2,800	22,390	1,018	31,456
GRAND TOTAL	37,369	33,723	79,283	51,161	201,536

[a] The strata given here represent the following:
1-High density of lake basins.
2-Medium density of lake basins.
3-Low density of lake basins.
4-Roseau and Red Lake bog region in northwestern Minnesota.

TABLE B-12. Minnesota--estimated number of breeding ducks during the years 1975-1977.

Species	Year	Unadjusted population index	Visibility factor[a]	Adjusted population index
Mallard	1975	91,458	1.60	146,000
	1976	84,069	1.81	152,000
	1977	96,164	2.27	218,000
Blue-winged teal	1975	50,962	3.20	163,000
	1976	93,116	4.16	387,000
	1977	41,666	5.26	219,000
Ring-necked duck	1975	9,919	1.50	15,000
	1976	4,897	1.81	9,000
	1977	4,055	4.16	17,000
TOTAL DUCKS	1975	198,446	2.10	417,000
	1976	244,099	2.77	676,000
	1977	170,080	4.34	738,000

[a] The visibility factors used in 1975 are mean values for the preceding years of 1968-1974. See text for explanation.

TABLE B-23. California--estimated total nesting pairs and fall population indices for the entire State, 1974-1977[a].

Species	Estimated Total Nesting Pairs 1974	1975	1976	1977	Fall Population Indices 1974	1975	1976	1977
Ducks:								
Dabblers:								
Mallard	35,190	51,300	36,950	47,310	156,440	226,820	167,070	207,980
Gadwall	4,920	5,230	3,930	5,410	32,440	31,700	23,980	32,680
Cinnamon Teal	7,500	10,380	8,070	9,560	41,270	46,820	42,210	45,660

TABLE B-13. Minnesota--estimated number of selected waterfowl breeding. Mallard and blue-winged teal numbers have been adjusted for birds not seen by aerial observers.

Year	Mallard (adjusted)	Gadwall	Wigeon	Pintail	Green-winged teal	Blue-winged teal (adjusted)	Shoveler	Scaup[a]
1968	110,000	1,829	2,777	801	223	160,000	4,498	23,098
1969	101,000	218	3,273	5,957	277	162,000	5,265	11,625
1970	111,000	1,799	780	1,297	58	153,000	3,738	15,268
1971	96,000	1,319	5,605	1,736	816	153,000	6,652	5,918
1972	69,000	1,031	430	1,489	587	100,000	2,267	13,204
1973[b]	104,000	3,149	4,923	3,863	178	136,000	4,474	28,136
1974[b]	98,000	2,116	2,571	2,285	351	112,000	1,757	63,689
1975	146,000	2,225	3,522	4,428	950	163,000	3,881	10,259
1976	152,000	970	2,901	1,677	127	387,000	12,232	24,280
1977	218,000	955	8,009	1,007	175	219,000	3,385	3,161

[a] Scaup are not regular resident breeding birds but are tallied as a part of the North American population.

[b] Procedural changes in manipulation of data initiated in 1975 have been used for revision of raw data in these years. Values presented here differ slightly from previous years.

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TABLE B-14. Washington--duck and coot breeding population indexes by species and stratum

	Stratum				Total			Percent Change	
Species	W. Wash.	Potholes	Irri.	Highlands	1977	1976	Average	Average	1976
Dabblers									
Mallard	7,300	15,210	15,470	8,910	46,890	63,180	58,910	-20%	-26%
Gadwall		5,440	790	90	6,320	9,070	4,780	+32%	-30%
Wigeon		8,100	510	1,330	9,950	14,790	9,620	+ 3%	-33%
Green-winged Teal		3,440	530	720	4,690	11,020	5,210	-10%	-58%
Blue-winged Teal & Cinnamon Teal	2,260	28,370	17,380	6,670	54,680	49,940	28,960	+89%	+ 9%
Shoveler		2,610	420	260	3,290	8,530	5,750	-43%	-42%
Pintail		1,960	320	1,140	3,420	7,050	5,820	-41%	-51%
Woodduck	10,960	170	660	90	11,880	4,070	9,410	+26%	+192%
Subtotal	20,520	65,310	36,080	19,210	141,120	167,650	128,460	+10%	-16%
Divers									
Redhead		10,860	4,280	3,060	18,200	26,560	12,320	+48%	-32%
Canvasback		390	170		560	700	330	+70%	-20%
Scaup		7,770	70	550	8,390	9,160	6,410	+31%	- 8%
Ring-necked duck		2,150	220	680	3,050	5,130	2,650	+15%	-41%
Goldeneye		1,040	220	1,960	3,220	2,950	2,490	+29%	+ 9%
Bufflehead		120	50	130	300	380	400	-25%	-21%
Ruddy duck		7,390	1,760	1,280	10,430	16,970	9,930	+ 5%	-39%
Subtotal		29,720	6,770	7,660	44,150	61,880	34,530	+28%	-29%
Mergansers									
Merganser, American		160			160		300	-46%	
Merganser, Hooded	780		70		850	1,540	2,320	-63%	-45%
Subtotal	780	160	70		1,010	1,540	2,620	-61%	-34%
Total Ducks	21,300	95,190	42,920	26,870	186,280	231,070	165,560	+13%	-19%
Coot	780	32,330	13,870	13,460	60,440	66,550	32,320	+87%	- 9%
Grand Total	22,080	127,520	56,790	40,330	246,720	297,620	197,880	+25%	-17%

TABLE B-15. Washington--waterfowl production indexes.

	Year			Percent Change	
Species	1977	1976	1967-1976 Average	From Average	From 1976
Dabblers					
Mallard	109,800	144,200	144,100	-24%	-24%
Gadwall	11,200	16,000	11,800	- 5%	-30%
Wigeon	17,000	24,900	25,300	-33%	-32%
Green-winged Teal	8,200	19,200	13,100	-37%	-57%
Blue-winged Teal & Cinnamon Teal	109,400	101,900	76,700	+43%	- 7%
Shoveler	6,100	15,400	14,900	-59%	-60%
Pintail	6,000	14,400	16,400	-63%	-58%
Woodduck	31,800	17,800	25,600	+24%	+79%
Subtotal	299,500	353,800	327,900	- 9%	-15%
Divers					
Redhead	27,000	49,000	22,900	+17%	-45%
Canvasback	900	1,500	5,400	-82%	-40%
Scaup	10,000	16,200	9,800	+ 2%	-38%
Ring-necked duck	4,500	7,700	3,800	+18%	-42%
Goldeneye	8,500	10,500	7,300	+16%	-19%
Bufflehead	500	600	500	NC	-16%
Ruddy duck	14,800	31,800	17,700	-16%	-53%
Subtotal	66,200	117,300	67,400	- 2%	-44%
Mergansers					
Mergansers, American	200		600	-67%	
Mergansers, Hooded	3,100	4,300	4,500	-31%	-28%
Subtotal	3,300	4,300	5,100	-37%	-26%
Total ducks	369,000	475,200	400,400	- 8%	-22%
Canada goose	14,500	14,100	12,000	+21%	+ 2%
Coot	75,700	94,700	45,300	+67%	-20%
Grand Total	459,200	584,000	457,700	NC	-21%

TABLE B-16. Washington--comparison of 1976 and 1977 Canada goose productivity and production index.

Habitat type	Amount surveyed/ Total, River Km.	Productivity unit 1977	Productivity unit 1976	Percent Change	Pop. index 1977	Pop. index 1976
Lower Columbia and Snake rivers	322/539	18.5	18.5	0%	6,181	6,209
Yakima River	42/137	6.4	3.8	+68%	546	324
Okanogan and Similkaneen rivers	23/72	37.6	38.2	-2%	1,690	1,719
Upper Columbia River	177/547	12.2	12.1	+1%	4,140	4,099
Columbia Basin lakes	52/56				1,261	1,156
Channeled scablands	288/1,618	Surv. 1976, assigned		NC	633	633
		Total goose production			14,451	14,140
		Change in index		+2%		

TABLE B-17. California--estimated total nesting pairs and fall population indices in the Sacramento Valley, 1974-1977[a].

Species	Estimated Total Nesting Pairs				Fall Population Indices			
	1974	1975	1976	1977	1974	1975	1976	1977
Ducks:								
Dabblers:								
Mallard	25,270	39,320	26,520	38,000	105,510	164,220	110,760	158,700
Gadwall	490	800	440	840	2,410	4,000	2,200	4,200
Cinnamon Teal	1,560	4,240	2,200	3,960	5,830	15,830	8,220	14,780
Shoveler	0	120	0	80	0	540	0	360
Pintail	800	720	480	1,080	3,080	2,780	1,850	4,160
Subtotal	28,120	45,200	29,640	43,960	116,830	187,370	123,030	182,200
Divers:								
Redhead	0	160	0	0	0	720	0	0
Canvasback	600	600	160	40	2,680	2,680	720	180
Scaup	8	40	0	0	0	180	0	0
Ruddy Duck	80	1,000	240	0	360	4,470	1,150	0
Subtotal	680	1,800	400	40	3,040	8,050	1,870	180
Miscellaneous	40	40	40	280	180	180	180	1,250
TOTAL DUCKS	28,840	47,040	30,080	44,280	120,050	195,600	125,080	183,630
Coot	9,460	37,440	22,440	34,680	43,580	172,510	103,400	159,800

[a] Area, 621,600 hectares; Type, agricultural land including 111,291 hectares of rice plus managed refuges and gun clubs; Coverage, 2 1/2% aerial transect; and remarks, the number of breeding pairs of ducks and the fall population showed an increase of 47% while coots showed a 55% increase.

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TABLE B-18. California--estimated total nesting pairs and fall population indices for Suisan Marsh, 1974-1977[a].

	Estimated Total Nesting Pairs				Fall Population Indices			
Species	1974	1975	1976	1977	1974	1975	1976	1977
Ducks:								
Dabblers:								
Mallard	1,370	3,220	1,370	1,380	5,700	13,380	5,700	5,750
Gadwall	360	620	160	330	1,810	3,460	800	1,670
Cinnamon Teal	270	630	240	330	1,000	2,330	900	1,250
Shoveler	120	140	60	10	540	600	260	60
Pintail	100	160	60	30	360	620	220	100
Subtotal	2,220	4,770	1,890	2,080	9,410	20,390	7,880	8,830
Divers:								
Redhead	0	0	0	0	0	0	0	0
Ruddy Duck	0	60	0	0	0	60	0	0
Subtotal	0	60	0	0	0	60	0	0
Miscellaneous	0	30	0	0	0	120	0	0
TOTAL DUCKS	2,220	4,860	1,890	2,080	9,410	20,570	7,880	8,830
Coot	40	2,860	560	1,600	190	13,180	2,580	7,350

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[a] Area, 36,260 hectares; Type, natural tital marsh, gun clubs, managed refuges and agricultural land; Coverage, 7.5% aerial transect; and Remarks, the number of breeding pairs and the fall population of ducks showed an increase of 10%. Coots increased 85%.

TABLE B-19. California--estimated total nesting pairs and fall population indices for North San Jonquin Valley, 1974-1977[a].

Species	Estimated Total Nesting Pairs 1974	1975	1976	1977	Fall Population Indices 1974	1975	1976	1977
Ducks:								
Dabblers:								
Mallard	2,090	2,130	1,470	1,590	6,780	6,910	4,580	5,170
Gadwall	1,020	1,040	710	840	3,210	3,250	2,230	2,650
Cinnamon Teal	1,310	1,650	820	890	4,110	5,180	2,550	2,790
Shoveler	220	190	120	180	670	590	360	570
Pintail	290	270	120	140	890	840	350	430
Subtotal	4,930	5,280	120	140	890	840	350	430
Divers:								
Redhead	70	160	80	20	200	500	240	60
Ruddy Duck	120	330	140	40	310	890	390	100
Subtotal	190	490	220	60	510	1,390	630	160
Miscellaneous	10	30	0	0	30	60	0	0
TOTAL DUCKS	5,130	5,800	3,460	3,700	16,200	18,220	10,700	11,770
Coot	2,130	7,380	2,890	5,500	11,610	42,720	15,730	29,960

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[a] Area, 38,850 hectares; Type, gun clubs and flooded pasture and rice marsh; Coverage, 25% aerial transect; and Remarks, breeding pairs of ducks increased 7% and the fall population increased 10%. Coots increased 90%.

TABLE B-20. California--estimated total nesting pairs and fall population indices for North San Joaquin Valley (Grassland), 1974-1977[a].

	Estimated Total Nesting Pairs				Fall Population Indices			
Species	1974	1975	1976	1977	1974	1975	1976	1977
Ducks:								
Dabblers:								
Mallard	1,090	1,010	830	800	3,090	2,800	2,290	2,200
Gadwall	150	170	60	130	430	460	150	360
Cinnamon Teal	480	470	180	170	1,380	1,290	470	470
Shoveler	60	90	20	0	150	250	40	0
Pintail	140	130	90	150	420	340	250	410
Subtotal	1,920	1,870	1,180	1,250	5,470	5,140	3,200	3,440
Divers:								
Redhead	50	0	0	20	140	0	0	40
Ruddy Duck	40	40	0	40	110	110	0	110
Subtotal	90	40	0	60	250	110	0	150
Miscellaneous	10	50	0	0	20	120	0	0
TOTAL DUCKS	2,020	1,960	1,180	1,310	5,740	5,370	3,200	3,590
Coot	820	1,210	1,620	1,490	4,410	6,590	8,760	8,100

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[a] Area, 59,570 hectares; Type, rice land, pasture and managed refuges; Coverage, 10% aerial variable; and Remarks, duck pairs and the fall population were up 11%. Coots were down 8% from last year.

TABLE B-21. California--estimated total nesting pairs and fall population indices for Northern California, 1974-1977[a].

Species	Estimated Total Nesting Pairs 1974	1975	1976	1977	Fall Population Indices 1974	1975	1976	1977
Ducks:								
Dabblers:								
Mallard	4,250	4,350	4,710	4,360	27,620	28,280	30,610	28,340
Gadwall	1,290	850	1,020	1,140	10,140	6,640	8,030	8,960
Cinnamon Teal	1,070	1,190	970	1,140	6,900	7,720	6,280	7,090
Shoveler	210	190	140	220	1,290	1,160	870	1,350
Pintail	1,400	1,430	900	730	8,030	8,180	5,160	4,220
Subtotal	8,220	8,010	7,740	7,590	53,980	51,980	50,950	49,960
Divers:								
Canvasback	20	10	70	30	80	60	320	130
Redhead	490	650	340	930	3,340	4,470	2,310	5,360
Scaup	50	90	70	250	310	540	410	1,550
Ruddy Duck	110	130	110	200	610	720	620	1,150
Subtotal	670	880	590	1,410	4,340	5,790	3,660	8,190
Miscellaneous	210	200	110	140	1,020	970	550	690
TOTAL DUCKS	9,100	9,090	8,440	9,140	59,340	58,740	55,160	58,840
Canada Goose	650	680	510	425	21,550[b]	19,660[c]	15,330[d]	17,880[e]
Coot	990	1,120	1,160	2,030	5,910	6,710	6,950	12,170

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[a] Area, not determined; Type, natural marshes, lakes and artificial impoundments; Coverage, aerial, complete, and Remarks, Canada geese showed 17% decreases in breeding pairs and an increase of 17% in the overall fall population index. Duck pairs were up 8% and the fall population was up 7% over last year, while coots showed an increase of 75%.

[b] Includes 17,500 non-breeder.

[c] Includes 16,090 non-breeder.

[d] Includes 12,130 non-breeder.

[e] Includes 14,780 non-breeder.

TABLE B-22. California--estimated total nesting pairs and fall population indices for Klamath Basin, 1974-1977[a].

	Estimated Total Nesting Pairs				Fall Population Indices			
Species	1974	1975	1976	1977	1974	1975	1976	1977
Ducks:								
Dabblers:								
Mallard	1,120	1,770	2,050	1,180	7,740	11,230	13,130	7,730
Gadwall	1,610	1,750	1,540	2,130	14,440	13,890	10,570	14,840
Cinnamon Teal	2,810	2,200	3,660	3,070	22,050	14,470	23,790	19,280
Shoveler	500	520	110	310	4,010	4,070	680	1,970
Pintail	300	450	100	120	2,020	2,860	670	640
Subtotal	6,340	6,690	7,460	6,810	50,260	46,520	48,840	44,460
Divers:								
Canvasback	60	40	60	50	350	250	300	400
Redhead	940	570	1,050	840	7,640	3,610	6,230	5,230
Scaup	40	40	80	300	300	250	470	1,870
Ruddy Duck	1,460	1,820	740	950	10,690	12,460	4,290	4,800
Subtotal	2,500	2,470	1,930	2,140	18,980	16,570	11,290	12,300
Miscellaneous	10	40	80	90	60	190	490	480
TOTAL DUCKS	8,850	9,200	9,470	9,040	69,300	63,280	60,620	57,240
Canada Goose	520	570	420	710	3,880[b]	3,140[c]	3,250[d]	3,780[e]
Coot	4,440	2,550	5,400	3,160	25,140	16,750	26,350	17,320

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[a] Area, 14,164 hectares; Type, natural and managed marsh area; Coverage, ground and aerial; and Remarks, pairs of geese were up 96%, while the fall population showed a 7% increase. Breeding pairs of ducks were down 5% while the fall population index was down 6%. Coot pairs were down 42% and the fall population index was down 34%.

[b] Includes 610 nonbreeders.

[c] Includes 390 nonbreeders.

[d] Includes 1,320 nonbreeders.

[e] Includes 1,080 nonbreeders.

TABLE B-23. California--estimated total nesting pairs and fall population indices for the entire State, 1974-1977[a/].

	Estimated Total Nesting Pairs				Fall Population Indices			
Species	1974	1975	1976	1977	1974	1975	1976	1977
Ducks:								
Dabblers:								
Mallard	35,190	51,300	36,950	47,310	156,440	226,820	167,070	207,980
Gadwall	4,920	5,230	3,930	5,410	32,440	31,700	23,980	32,680
Cinnamon Teal	7,500	10,380	8,070	9,560	41,270	46,820	42,210	45,660
Shoveler	1,110	1,250	450	800	6,660	7,210	2,210	4,310
Pintail	3,030	3,160	1,750	2,250	14,800	15,620	8,500	9,960
Subtotal	51,750	71,820	51,150	65,330	251,610	328,170	243,970	300,500
Divers:								
Canvasback	80	210	130	80	430	1,030	620	530
Redhead	2,150	1,980	1,630	1,850	14,000	11,260	9,500	10,870
Scaup	90	170	150	550	610	970	880	3,420
Ruddy Duck	1,810	3,380	1,230	1,230	12,080	18,710	6,450	6,160
Subtotal	4,130	5,740	3,140	3,710	27,120	31,970	17,450	20,980
Miscellaneous	280	390	230	510	1,310	1,640	1,220	2,420
TOTAL DUCKS	56,160	77,950	54,520	69,550	280,040	361,780	262,640	323,900
Canada Goose	1,170	1,250	930	1,135	25,430	22,800	18,580	21,660
Coot	17,880	52,560	34,070	48,460	90,840	258,460	163,770	234,700

[a/] A comparative summary of nesting pairs of waterfowl for the past four seasons, together with final fall population including young plus resident adults is shown in the following table. These figures for each year have been derived from the preceding tables. In almost all cases the figures shown for "nesting pairs" are more accurate than those indicating "fall population indices."

TABLE B-24. Colorado--summary of duck breeding ground population estimates in selected areas, 1977.

	Total Est. Breeding Pairs			Percent Change	
Area	1977	1976	Long-term Average[a]	From 1976	From Long-term Average
San Luis Valley	-	34,759	27,855	-	-
North Park[b]	-	16,535	17,115	-	-
South Platte Valley	-	10,062	6,773	-	-
Cache la Poudre Valley	-	6,927	3,662	-	-
Yampa Valley	2,189	2,145	2,755	+ 2.1	- 20.5
Brown's Park	1,009	593	1,147	+ 70.2	- 12.0
Total	-	71,021	59,307	-	-

[a] San Luis Valley and North Park averages are based on results of 1964 through 1976 and 1968 through 1976 surveys, respectively, because of changes in survey methods utilized prior to those dates. Figures for other areas are 22 year averages.

[b] Aerial counts corrected by species from visibility ratios obtained in the San Luis Valley.

TABLE B-25. Colorado--estimated number of Canada geese observed and estimated production, Moffat County, 1977.

Area	Nesting Pairs	Non-nesting Pairs	Total Adults	Estimated No. Goslings[a]	Total Birds
Yampa River					
Craig-Juniper Springs	25	209	259	72	331
Juniper Springs-Cross Mountain	15	122	152	48	200
Lily Park	14	80	108	50	158
Subtotal	54	411	519	170	689
Green River					
Brown's Park	61	166	288	210	498
Dinosaur National Monument	50	105	205	249	454
Subtotal	111	271	493	459	952
Little Snake River	22	133	177	54	231
GRAND TOTAL	187	815	1,189	683	1,872

[a] Calculated using average brood size observed and number of successful nests.

TABLE B-26. Colorado--total estimated number of Canada geese observed, Moffat County, 1977.

Area	1977	1976	1967-76 Average	Percent Change	
				From 1976	From 1967-76 Average
Yampa River	689	690	565	- 0.1	+ 21.9
Green River					
Brown's Park	498	405	334	+ 23.0	+ 49.1
Dinosaur National Monument[a]	454	211	326	+ 115.2	+ 39.3
Little Snake River	231	255	303	- 9.4	- 23.8
TOTAL	1,872	1,561	1,528	+ 19.9	+ 22.5

[a] Not surveyed until 1970.

TABLE B-27. Colorado--estimated number of Canada goose goslings, Moffat County, 1977.

Area	1977	1976	1967-76 Average	Percent Change	
				From 1976	From 1967-76 Average
Yampa River	170	257	169	- 33.9	+ 0.6
Green River					
Brown's Park	210	133	127	+ 57.9	+ 65.4
Dinosaur National Monument[a]	249	104	117	+ 139.4	+ 112.8
Little Snake River	54	91	97	- 40.7	- 44.3
TOTAL	683	585	510	+ 16.8	+ 33.9

[a] Not surveyed until 1970.

TABLE B-28. Colorado--number of Canada goose goslings produced in north central Colorado production trend areas, 1977.

Area	No. of Goslings			Percent Change	
	1977	1976	1969-1976 Average	From 1976	From 1969-1976
Wellington	215	278	261	- 22.7	- 17.6
Ft. Collins	288	401	285	- 28.2	+ 1.1
Loveland	125	144	93	- 13.2	+ 34.4
Boulder	142	162	225	- 12.3	- 36.9
Denver	357	304	284	+ 17.4	+ 25.7
Total	1,127	1,289	1,148	- 12.6	- 1.8

TABLE B-29. Colorado--number of adult Canada geese observed in north central Colorado production trend areas, 1977.

Area	No. of Goslings			Percent Change	
	1977	1976	1969-1976 Average	From 1976	From 1969-1976
Wellington	615	555	749	+ 10.8	- 17.9
Ft. Collins	613	653	703	- 6.1	- 12.8
Loveland	182	291	229	- 37.5	- 20.5
Boulder	394	430	619	- 8.4	- 36.3
Denver	924	995	1,265	- 7.3	- 27.0
Total	2,728	2,924	3,565	- 6.7	- 23.5

TABLE B-30. Wisconsin--wetland densities by Region, 1973-77.

	Wetlands Recorded Per 259 Hectares														
	Southeast Central					Northern High					Northern Low				
Wetland Type[a/]	1973	1974	1975	1976	1977	1973	1974	1975	1976	1977	1973	1974	1975	1976	1977
I, II	5.6	3.0	3.4	3.2	0.9	1.1	1.2	2.4	1.9	0.9	2.0	1.0	0.7	1.0	0.6
III	1.1	0.9	1.1	1.4	0.6	0.6	0.8	0.9	0.9	0.8	0.7	0.5	0.6	0.6	0.3
IV-V	1.4	1.7	1.7	2.3	1.3	2.7	3.0	3.1	3.4	2.5	1.7	1.0	1.1	1.2	1.1
VII-VIII	0.7	0.5	0.7	0.7	0.3	0.7	0.5	0.7	0.8	0.4	1.0	0.6	0.7	0.6	0.1
Streams	1.4	1.2	1.2	1.1	0.9	1.6	1.5	1.3	1.1	1.1	3.0	1.9	2.2	1.8	1.6
Ditches	0.9	1.5	1.9	1.6	1.3	0.1	0.1	0.3	0.2	0.1	0.3	0.4	0.5	0.2	0.2

[a/] Based on classification system listed in March, Martz and Hunt of the Wisconsin Department of Natural Resources.

TABLE B-31. Wisconsin--breeding duck population estimates, 1973-1977[a]

Regions and Year	Mallard	Blue-winged Teal	Other Species	Total	% Changes Between Years
Southeast-Central					
1973	45,600	101,600	68,800	216,000	
1974	48,100	143,200	46,400	237,700	+10%
1975	77,900	233,100	41,000	352,000	+48%
1976	49,500	115,500	6,500	171,500	-51%
1977	25,700	56,700	62,800	145,200	-15%
Northern High					
1973	12,600	19,300	0	31,900	
1974	26,000	9,700	8,700	44,400	-39%
1975	20,000	18,100	20,000	58,100	+31%
1976	13,300	29,600	12,700	55,600	-4%
1977	17,700	48,600	25,400	91,700	+65%
Northern Low					
1973	36,800	65,600	18,700	121,100	
1974	23,500	12,000	3,000	38,500	-68%
1975	12,800	7,200	4,100	24,100	-37%
1976	10,800	11,100	27,400	49,300	+205%
1977	16,000	28,900	200	45,100	-9%
All Regions					
1973	94,900	186,500	87,500	368,900	
1974	97,500 -(3%)	164,800 -(12%)	58,000 -(34%)	320,300	-13%
1975	110,700 +(14%)	258,400 +(57%)	65,100 +(12%)	414,200	+29%
1976	73,600 -(34%)	156,200 -(40%)	46,600 -(28%)	276,400	-33%
1977	59,400 -(19%)	134,200 -(14%)	88,400 +(90%)	282,000 +(2%)	+2%
4-Year Average	94,175	191,475	64,300	344,950	

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[a] Data are expanded aerial counts based on ground surveys to adjust for birds missed by aerial crews. A change of 20% is statistically significant. Included are: Wood duck, black duck, shoveler, pintail, ringnecks, redheads, green-winged teal, gadwall, wigeon, ruddies and hooded mergansers.

APPENDIX C. WATERFOWL HARVEST SURVEY TABLES.

TABLE C-1. Factors used to adjust survey statistics to include the activities of junior hunters

	Junior hunter adjustment factors			
Estimate	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway & Alaska
Ducks bagged (including sea ducks)	1.03621	1.04655	1.06055	1.04985
Geese bagged	1.02402	1.03369	1.04110	1.04508
Coots bagged	1.08302	1.09034	1.10147	1.09415
Days hunted	1.05174	1.07003	1.08559	1.08708
Ducks lost	1.03641	1.05699	1.07053	1.06152
Geese lost	1.01573	1.03738	1.07067	1.07411
Coots lost	1.08247	1.10282	1.10400	1.10685

TABLE C-2. Factors used to adjust survey statistics for memory and prestige bias

	Memory and prestige response bias factors			
Estimate	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway & Alaska
Ducks bagged (including sea ducks)	0.86925	0.77656	0.73902	0.78952
Geese bagged	0.80428	0.84800	0.86838	0.85159
Coots bagged	0.60692	0.63668	0.78878	0.59248

Table C-3. Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1975 and 1976 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)[a]

	Season	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway	Alaska	United States total
Retrieved duck kill:							
Mallard	1975	413,400	2,522,525	924,083	1,138,685	16,544	5,015,237
	1976	484,437	2,373,638	939,671	1,192,533	30,358	5,020,637
	% change	+ 17	- 6	+ 2	+ 5	+ 83	0
Domestic mallard	1975	7,275	5,587	0	3,209	0	16,071
	1976	6,493	3,600	195	386	0	10,674
	% change	- 11	- 36	++	- 88	0	- 34
Black duck	1975	267,986	93,840	938	0	0	362,764
	1976	315,428	114,447	922	0	0	430,797
	% change	+ 18	+ 22	- 2	0	0	+ 19
Black X mallard	1975	13,601	4,892	0	0	0	18,493
	1976	8,235	8,028	140	0	0	16,403
	% change	- 39	+ 64	++	0	0	- 11
Mottled duck	1975	13,071	33,937	79,328	0	0	126,336
	1976	16,175	56,109	52,327	0	0	124,611
	% change	+ 24	+ 65	- 34	0	0	- 1
Gadwall	1975	36,392	360,647	285,781	128,844	392	812,056
	1976	41,135	399,791	318,734	99,354	1,031	860,045
	% change	+ 13	+ 11	+ 12	- 23	+163	+ 6
American wigeon	1975	88,421	242,078	183,691	424,218	12,530	950,938
	1976	99,911	218,167	180,482	553,431	14,992	1,066,983
	% change	+ 13	- 10	- 2	+ 30	+ 20	+ 12

Table C-3. Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1975 and 1976 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued[a].

	Season	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway	Alaska	United States total
Retrieved duck kill, continued:							
Green-winged teal	1975	130,813	615,492	535,506	626,010	10,425	1,918,246
	1976	144,023	599,613	482,965	702,004	15,179	1,943,784
	% change	+ 10	- 3	- 10	+ 12	+ 46	+ 1
Blue-winged and cinnamon teal	1975	63,910	706,749	249,255	94,037	0	1,113,951
	1976	92,643	489,036	175,172	91,148	375	848,374
	% change	+ 45	- 31	- 30	- 3	++	- 24
Northern shoveler	1975	18,900	113,311	108,157	302,586	4,063	547,017
	1976	15,275	108,873	98,282	241,036	8,527	471,993
	% change	- 19	- 4	- 9	- 20	+110	- 14
Pintail	1975	44,121	195,277	292,991	1,036,450	16,984	1,585,823
	1976	45,142	162,872	190,173	951,664	26,985	1,376,836
	% change	+ 2	- 17	- 35	- 8	+ 59	- 13
Wood duck	1975	311,513	814,787	47,840	31,905	0	1,206,045
	1976	299,008	672,103	53,264	36,769	0	1,061,144
	% change	- 4	- 18	+ 11	+ 15	0	- 12
Redhead	1975	3,318[b]	49,255	61,504	43,883	49	158,009
	1976	9,385	51,504	58,168	41,569	0	160,626
	% change	+183	+ 5	- 5	- 5	-100	+ 2
Canvasback	1975	1,585[b]	31,084	18,903	47,308	245	99,125
	1976	25,136	34,863	19,134	50,207	468	129,808
	% change	++	+ 12	+ 1	+ 6	+ 91	+ 31

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Table C-3. Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1975 and 1976 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued[a].

	Season	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway	Alaska	United States total
Retrieved duck kill, continued:							
Greater scaup	1975	55,840	21,273	1,696	11,540	2,300	92,649
	1976	52,366	23,970	816	13,683	1,218	92,053
	% change	- 6	+ 13	- 52	+ 19	- 47	- 1
Lesser scaup	1975	31,816	250,334	52,775	25,881	2,007	362,813
	1976	61,537	340,191	96,822	50,605	3,561	552,716
	% change	+ 93	+ 36	+ 83	+ 96	+ 77	+ 52
Ring-necked duck	1975	127,337	352,915	56,537	35,209	441	572,439
	1976	174,962	237,063	60,803	37,159	0	509,987
	% change	+ 37	- 33	+ 8	+ 6	-100	- 11
Goldeneyes	1975	16,038	37,453	7,922	20,662	1,762	83,837
	1976	22,844	46,017	7,709	18,903	2,624	98,097
	% change	+ 42	+ 23	- 3	- 9	+ 49	+17
Bufflehead	1975	47,280	55,759	9,699	23,171	1,517	137,426
	1976	48,650	49,700	12,038	14,918	1,874	127,180
	% change	+ 3	- 11	+ 24	- 36	+ 24	- 7
Ruddy duck	1975	16,243	22,513	8,214	29,046	0	76,016
	1976	10,246	21,556	10,443	40,854	0	83,099
	% change	- 37	- 4	+ 27	+ 41	0	+ 9
Oldsquaw	1975	23,517	1,593	107	232	49	25,498
	1976	16,366	1,606	0	597	468	19,037
	% change	- 30	+ 1	-100	+157	+855	- 25

Table C-3. Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1975 and 1976 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued[a].

	Season	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway	Alaska	United States total
Retrieved duck kill, continued:							
Eiders	1975	14,955	0	0	0	0	14,955
	1976	17,524	155	0	0	0	17,679
	% change	+ 17	++	0	0	0	+ 18
Scoters	1975	78,958	8,772	119	471	1,126	89,446
	1976	40,836	3,640	1,093	2,711	1,124	49,404
	% change	- 48	- 59	+818	+476	0	- 45
Hooded merganser	1975	19,877	27,379	2,352	1,462	0	51,070
	1976	22,002	37,977	4,140	3,149	94	67,362
	% change	+ 11	+ 39	+ 76	+115	++	+ 32
Other mergansers	1975	13,679	20,229	3,749	5,149	98	42,904
	1976	18,220	12,635	3,553	8,942	562	43,912
	% change	+ 33	- 38	- 5	+ 74	+473	+ 2
Other ducks	1975	1,108	1,328	477	910	49	3,872
	1976	2,164	1,329	2,373	1,163	468	7,497
	% change	+ 95	0	+397	+ 28	+855	+ 94
Total:	1975	1,860,956	6,589,015	2,931,626	4,030,870	70,580	15,483,047
	1976	2,090,148	6,068,492	2,769,418	4,152,787	109,909	15,190,754
	% change	+ 12	- 8	- 6	+ 3	+ 56	- 2

Table C-3. Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1975 and 1976 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued[a].

	Season	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway	Alaska	United States total
Unretrieved duck kill:	1975	418,031	1,413,234	578,140	717,466	11,982	3,138,853
	1976	462,035	1,233,971	519,141	712,847	17,373	2,945,367
	% change	+ 11	- 13	- 10	- 1	+ 45	- 6
Total duck kill:	1975	2,278,987	8,002,249	3,509,766	4,748,336	82,562	18,621,900
	1976	2,552,183	7,302,463	3,288,559	4,865,634	127,282	18,136,121
	% change	+ 12	- 9	- 6	+ 2	+ 54	- 3
Retrieved coot kill:	1975	165,635	644,954	86,474	189,116	824	1,087,003
	1976	125,940	598,709	60,625	143,286	1,105	929,665
	% change	- 24	- 7	- 30	- 24	+ 34	- 14
Unretrieved coot kill:	1975	43,286	158,180	37,694	75,267	178	314,605
	1976	29,118	135,547	28,164	55,120	1,350	249,299
	% change	- 33	- 14	- 25	- 27	+658	- 21
Total coot kill:	1975	208,921	803,134	124,168	264,383	1,002	1,401,608
	1976	155,058	734,256	88,789	198,406	2,455	1,178,964
	% change	- 26	- 9	- 28	- 25	+145	- 16

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[a] Includes ducks bagged during all special duck seasons.

[b] Hunting of Redheads and Canvasbacks closed in Atlantic Flyway in 1975 except in designated area in Florida.

Table C-4. Total retrieved (by species) and unretrieved goose kill in the United States during the 1975 and 1976 hunting seasons (retrieved kill estimates adjusted for response bias, all estimates include kill by junior hunters)

	Season	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway	Alaska	United States total
Retrieved goose kill:							
Canada goose[a]	1975	351,773	317,743	177,326	182,186	9,681	1,038,709
	1976	362,582	342,208	177,074	175,412	7,081	1,064,357
	% change	+ 3	+ 8	0	- 4	- 27	+ 2
Snow goose	1975	10,227	63,149	238,209	90,896	0	402,481
	1976	16,948	29,270	161,947	140,822	92	349,079
	% change	+ 66	- 54	- 32	+ 55	++	- 13
Blue goose	1975	107	106,763	118,407	1,359	0	226,636
	1976	103	71,656	88,680	0	0	160,439
	% change	- 4	- 33	- 25	-100	0	- 29
White-fronted goose	1975	0	28,645	49,085	37,330	1,255	116,315
	1976	0	20,731	33,641	46,272	1,288	101,932
	% change	0	- 28	- 31	+ 24	+ 3	- 12
Brant	1975	33,407	0	0	3,011	269	36,687
	1976	0[b]	0	0	1,213	1,655	2,868
	% change	-100	0	0	- 60	+515	- 92

Table C-4. Total retrieved (by species) and unretrieved goose kill in the United States during the 1975 and 1976 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)--continued

	Season	Atlantic Flyway	Mississippi Flyway	Central Flyway	Pacific Flyway	Alaska	United States total
Retrieved goose kill, continued :							
Others and unknown	1975	0	0	151[c]	6,999[c]	359[d]	7,509
	1976	0	0	1,750[c]	7,964[c]	3,863[d]	13,577
	% change	0	0	++	+ 14	+976	+ 81
Total	1975	395,514	516,300	583,179	321,782	11,564	1,828,339
	1976	379,633	463,866	463,092	371,682	13,979	1,692,252
	% change	- 4	- 10	- 21	+ 16	+ 21	- 7
Unretrieved kill:	1975	42,371	63,847	82,236	47,513	1,696	237,663
	1976	42,397	69,913	68,136	57,385	1,869	239,700
	% change	0	+ 10	- 17	+ 21	+ 10	+ 1
Total goose kill:	1975	437,885	580,147	665,415	369,295	13,260	2,066,002
	1976	422,030	533,779	531,228	429,067	15,848	1,931,953
	% change	- 4	- 8	- 20	+ 16	+ 20	- 6

[a] Includes all subspecies.
[b] Brant season in Atlantic Flyway closed in 1976
[c] Ross' goose.
[d] Emperor goose.

BEST DOCUMENT AVAILABLE

TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS.

	CONNECTICUT		DELAWARE		FLORIDA		GEORGIA	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	25.01%	26.21%	31.84%	26.92%	1.30%	1.88%	14.91%	23.65%
DOMESTIC MALLARD	3.20	0.88	0.16	0.43	0.45	0.04	0.00	0.09
BLACK DUCK	25.88	28.85	20.16	25.21	0.45	0.21	2.76	2.19
BLACK X MALLARD	2.91	0.22	0.80	0.30	0.05	0.04	0.25	0.37
MOTTLED DUCK	0.00	0.00	0.00	0.00	6.25	4.85	0.00	0.00
GADWALL	0.15	0.44	2.24	7.27	0.95	1.42	0.75	0.73
AMERICAN WIGEON	0.87	0.66	2.40	1.71	5.70	5.10	2.26	0.73
GREEN-WINGED TEAL	6.40	5.95	18.24	19.23	5.55	6.39	6.02	3.38
BLUE-WINGED/CINNAMON TEAL	0.44	0.44	0.00	0.00	14.35	15.71	2.01	0.91
NORTHERN SHOVELER	0.00	0.00	3.68	3.85	2.90	1.46	0.75	0.46
PINTAIL	0.44	1.10	3.36	2.56	2.60	3.39	1.00	0.27
WOOD DUCK	11.20	7.71	0.80	0.43	9.75	7.40	59.90	55.98
REDHEAD	0.15	0.00	0.00	0.00	1.15	0.92	0.13	0.18
CANVASBACK	0.00	5.95	0.16	2.14	0.35	1.00	0.00	1.01
GREATER SCAUP	7.42	7.49	6.24	2.99	0.35	0.38	0.00	0.00
LESSER SCAUP	1.16	1.54	1.12	4.70	4.35	10.16	0.38	0.73
RING-NECKED DUCK	0.44	0.00	0.64	0.43	38.55	36.02	7.39	8.31
GOLDENEYES	0.58	1.98	0.80	0.43	0.05	0.00	0.00	0.00
BUFFLEHEAD	3.93	4.63	0.80	0.43	0.45	0.42	0.00	0.00
RUDDY DUCK	0.00	0.00	1.92	0.30	0.15	0.54	0.25	0.09
OLDSQUAW	0.00	0.00	1.28	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	8.97	3.11	1.12	0.00	0.05	0.00	0.00	0.00
HOODED MERGANSERS	0.58	0.44	0.64	0.00	2.80	1.76	1.25	0.82
OTHER MERGANSERS	0.29	2.42	1.60	1.28	0.95	0.33	0.00	0.09
OTHER DUCKS	0.00	0.00	0.00	0.00	0.50	0.59	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	49,667	40,638	55,981	42,125	209,129	333,689	75,239	86,288
PERCENT CHANGE		-18%		-25%		+60%		+15%
SEASONAL DUCK HARVEST PER ADULT HUNTER	3.24	2.89	4.17	3.37	8.19	10.23	5.78	6.18
PERCENT CHANGE		-11%		-19%		+25%		+7%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	100.00%	100.00%	95.36%	97.67%	100.00%	100.00%	100.00%	100.00%
SNOW GOOSE	0.00	0.00	1.55	2.33	0.00	0.00	0.00	0.00
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	3.09	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	5,387	3,966	41,484	53,843	2,356	4,027	1,035	1,025
PERCENT CHANGE		-26%		+30%		+71%		-1%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.36	0.29	3.13	4.36	0.09	0.13	0.08	0.07
PERCENT CHANGE		-20%		+39%		+34%		-7%
COOT HARVEST (RETRIEVED KILL)	1,395	512	2,275	504	43,679	48,681	4,312	4,470
PERCENT CHANGE		-63%		-78%		+11%		+4%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.09	0.03	0.16	0.04	1.66	1.43	0.32	0.31
PERCENT CHANGE		-60%		-76%		-13%		-3%
TOTAL HUNTER DAYS	92,149	77,448	107,048	111,359	159,177	213,263	72,117	79,465
PERCENT CHANGE		-16%		+4%		+34%		+10%
DAYS PER ADULT HUNTER	5.92	5.43	7.86	8.77	6.14	6.44	5.45	5.60
PERCENT CHANGE		-8%		+12%		+5%		+3%
TOTAL DUCK STAMPS SOLD	15,403	15,005	13,233	12,429	25,582	32,340	13,143	13,513
PERCENT CHANGE		-3%		-6%		+26%		+3%
PERCENT SOLD TO NON-HUNTERS	3.93%	9.56%	2.22%	2.85%	3.69%	2.66%	4.34%	0.24%
TOTAL ADULT HUNTERS (POTENTIAL)	14,798	13,576	12,964	12,075	24,638	31,486	12,573	13,481
PERCENT CHANGE		-8%		-7%		+28%		+7%
PERCENT ACTIVE ADULT HUNTERS	79.5%	78.2%	88.2%	88.5%	85.5%	83.7%	86.5%	85.8%
PERCENT SUCCESSFUL ADULT HUNTERS	50.3%	53.9%	71.5%	72.9%	71.8%	72.6%	68.4%	68.7%
SAMPLE SIZES								
DUCK WINGS	658	447	625	234	2,000	2,393	799	1,095
GOOSE TAILS	53	37	399	215	0	0	0	0
QUESTIONNAIRES	782	413	551	271	1,119	847	448	247

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TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS--continued

	MAINE		MARYLAND[a]		MASSACHUSETTS		NEW HAMPSHIRE	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	4.85%	4.40%	32.84%	26.96%	17.15%	14.43%	14.13%	12.65%
DOMESTIC MALLARD	0.21	0.00	0.88	0.00	0.13	0.13	0.00	0.93
BLACK DUCK	37.13	33.34	20.27	29.41	30.61	30.26	35.18	27.15
BLACK X MALLARD	0.62	0.38	0.88	0.68	1.47	0.77	1.50	1.23
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	0.00	0.00	2.92	4.77	0.27	0.13	0.30	0.00
AMERICAN WIGEON	0.21	0.38	4.29	1.77	1.14	0.51	0.00	0.31
GREEN-WINGED TEAL	11.14	11.83	4.87	5.04	5.96	8.68	3.31	6.48
BLUE-WINGED/CINNAMON TEAL	2.99	2.89	0.78	0.00	0.60	0.38	1.80	1.23
NORTHERN SHOVELER	0.00	0.00	0.88	0.14	0.13	0.13	0.00	0.00
PINTAIL	0.52	0.76	2.24	1.36	0.40	0.64	0.30	0.00
WOOD DUCK	6.19	10.69	2.34	1.50	9.44	7.41	27.66	27.15
REDHEAD	0.00	0.00	0.10	0.00	0.00	0.13	0.00	0.00
CANVASBACK	0.00	0.00	0.00	0.00	0.07	1.28	0.00	0.00
GREATER SCAUP	0.62	1.01	7.02	3.27	2.14	3.45	0.30	0.62
LESSER SCAUP	0.41	0.76	1.07	1.63	0.54	0.51	0.30	0.31
RING-NECKED DUCK	2.68	1.26	0.10	0.00	0.60	0.13	2.41	2.47
GOLDENEYES	2.48	2.89	2.63	2.45	1.21	3.32	0.30	1.54
BUFFLEHEAD	4.33	6.92	3.02	4.77	5.07	6.26	1.80	0.93
RUDDY DUCK	0.41	0.00	0.88	0.55	0.40	0.38	0.00	0.00
OLDSQUAW	0.51	1.32	6.67	10.95	0.52	1.33	0.00	0.00
EIDERS	11.56	7.44	0.00	0.00	5.65	10.32	0.00	0.00
SCOTERS	11.73	10.48	4.05	3.28	14.00	5.99	2.89	9.90
HOODED MERGANSERS	0.83	1.38	0.49	0.82	0.47	0.13	3.31	2.78
OTHER MERGANSERS	0.62	1.89	0.59	0.68	2.01	3.32	4.51	4.32
OTHER DUCKS	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	83,809	97,366	164,050	86,493	93,160	98,578	29,496	43,659
PERCENT CHANGE		+16%		-47%		+6%		+48%
SEASONAL DUCK HARVEST PER ADULT HUNTER	4.58	5.53	4.12	2.08	3.75	4.29	2.67	4.11
PERCENT CHANGE		+21%		-49%		+14%		+54%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	100.00%	100.00%	98.70%	99.62%	80.65%	100.00%	100.00%	100.00%
SNOW GOOSE	0.00	0.00	0.96	0.32	0.00	0.00	0.00	0.00
BLUE GOOSE	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.28	0.00	19.36	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	979	2,739	189,706	162,034	8,391	8,859	1,451	1,296
PERCENT CHANGE		+180%		-15%		+6%		-11%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.05	0.16	4.82	3.95	0.34	0.39	0.13	0.12
PERCENT CHANGE		+189%		-18%		+14%		-8%
COOT HARVEST (RETRIEVED KILL)	3,817	3,572	3,418	203	2,867	2,352	232	309
PERCENT CHANGE		-6%		-94%		-18%		+33%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.20	0.19	0.08	0.01	0.11	0.10	0.02	0.03
PERCENT CHANGE		-3%		-94%		-12%		+40%
TOTAL HUNTER DAYS	108,834	116,483	333,398	308,533	178,153	176,307	75,463	72,525
PERCENT CHANGE		+7%		-7%		-1%		-4%
DAYS PER ADULT HUNTER	5.81	6.48	8.25	7.32	7.01	7.51	6.72	6.69
PERCENT CHANGE		+11%		-11%		+7%		0%
TOTAL DUCK STAMPS SOLD	18,152	17,458	39,509	40,227	25,298	22,934	11,198	10,879
PERCENT CHANGE		-4%		+2%		-9%		-3%
PERCENT SOLD TO NON-HUNTERS	1.86%	2.05%	5.78%	2.88%	4.54%	2.67%	4.59%	5.31%
TOTAL ADULT HUNTERS (POTENTIAL)	17,814	17,100	38,448	40,101	24,149	22,322	10,684	10,301
PERCENT CHANGE		-4%		+4%		-8%		-4%
PERCENT ACTIVE ADULT HUNTERS	83.6%	84.3%	86.8%	85.5%	85.1%	85.2%	87.3%	83.3%
PERCENT SUCCESSFUL ADULT HUNTERS	62.4%	65.6%	72.6%	68.8%	58.6%	60.1%	57.5%	53.2%
SAMPLE SIZES								
DUCK WINGS	879	787	949	643	1,349	698	327	304
GOOSE TAILS	8	14	1,765	1,574	93	60	8	6
QUESTIONNAIRES	813	541	1,819	1,113	1,186	808	362	221

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TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS.-continued

	NEW JERSEY		NEW YORK		NORTH CAROLINA[a]		PENNSYLVANIA	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	24.84%	22.59%	33.36%	34.09%	11.67%	21.85%	49.32%	48.86%
DOMESTIC MALLARD	0.37	0.61	0.23	0.19	0.11	0.40	0.97	0.76
BLACK DUCK	25.40	35.16	13.05	14.80	5.50	8.84	9.49	11.50
BLACK X MALLARD	0.93	0.81	1.10	0.63	0.00	0.16	0.64	0.29
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	1.12	1.62	1.61	1.89	4.60	3.45	0.97	1.24
AMERICAN WIGEON	5.98	3.34	2.39	5.53	16.27	6.83	1.85	4.66
GREEN-WINGED TEAL	9.99	10.13	5.47	6.00	8.98	6.19	3.38	3.71
BLUE-WINGED/CINNAMON TEAL	1.49	3.55	4.00	3.11	2.36	4.58	1.77	0.57
NORTHERN SHOVELER	1.03	0.30	0.32	0.22	1.68	1.77	0.24	0.00
PINTAIL	7.96	2.74	0.83	1.63	4.27	5.94	0.24	0.67
WOOD DUCK	5.60	4.76	16.41	10.96	23.12	21.04	17.78	14.56
REDHEAD	0.00	0.41	0.09	0.62	0.00	0.08	0.00	1.05
CANVASBACK	0.00	2.03	0.00	1.82	0.11	0.08	0.00	0.48
GREATER SCAUP	5.70	4.86	5.01	3.99	0.79	2.65	0.89	1.52
LESSER SCAUP	1.49	1.62	1.52	1.60	2.25	3.37	1.53	2.47
RING-NECKED DUCK	0.26	0.33	0.92	1.23	7.74	6.10	0.97	2.00
GOLDENEYES	0.56	0.10	0.74	1.70	0.00	0.72	0.32	1.05
BUFFLEHEAD	2.43	3.65	1.56	2.61	3.48	2.01	2.98	1.71
RUDDY DUCK	0.37	0.00	0.00	0.28	3.37	1.45	1.69	0.67
OLDSQUAW	0.93	0.33	1.27	0.93	0.00	0.00	2.82	0.29
EIDERS	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00
SCOTERS	2.43	0.81	8.66	3.22	2.25	0.40	1.21	0.48
HOODED MERGANSERS	0.56	0.22	0.78	1.01	1.12	1.85	0.89	0.95
OTHER MERGANSERS	0.84	0.10	0.69	1.73	0.34	0.24	0.08	0.57
OTHER DUCKS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	143,049	167,012	351,444	326,671	138,216	211,746	126,124	180,224
PERCENT CHANGE		+17%		-7%		+53%		+43%
SEASONAL DUCK HARVEST PER ADULT HUNTER	4.13	5.56	3.90	4.17	5.08	7.39	1.78	2.48
PERCENT CHANGE		+35%		+7%		+45%		+40%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	34.36%	75.00%	82.19%	100.00%	85.48%	65.00%	97.62%	100.00%
SNOW GOOSE	6.75	25.00	0.00	0.00	14.52	35.00	1.59	0.00
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRANT	58.90	0.00	17.92	0.00	0.00	0.00	0.79	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	33,393	20,714	36,072	36,206	14,092	20,955	29,250	33,815
PERCENT CHANGE		-38%		0%		+49%		+16%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.98	0.70	0.40	0.47	0.52	0.74	0.42	0.47
PERCENT CHANGE		-28%		+16%		+41%		+13%
COOT HARVEST (RETRIEVED KILL)	5,291	4,675	10,191	4,721	36,174	21,746	11,890	9,623
PERCENT CHANGE		-12%		-54%		-40%		-19%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.15	0.15	0.11	0.06	1.27	0.73	0.16	0.13
PERCENT CHANGE		+2%		-46%		-43%		-21%
TOTAL HUNTER DAYS	224,622	229,512	569,022	457,387	180,385	204,546	368,222	460,937
PERCENT CHANGE		+2%		-20%		+13%		+25%
DAYS PER ADULT HUNTER	6.39	7.53	6.20	5.74	6.53	7.03	5.11	6.25
PERCENT CHANGE		+18%		-7%		+8%		+22%
TOTAL DUCK STAMPS SOLD	35,235	31,988	90,214	79,982	26,765	28,132	70,877	72,686
PERCENT CHANGE		-9%		-11%		+5%		+3%
PERCENT SOLD TO NON-HUNTERS	5.34%	9.08%	3.29%	5.15%	2.16%	1.91%	3.36%	3.54%
TOTAL ADULT HUNTERS (POTENTIAL)	33,431	28,993	87,246	75,768	26,271	27,666	68,496	70,113
PERCENT CHANGE		-13%		-13%		+5%		+2%
PERCENT ACTIVE ADULT HUNTERS	84.6%	84.1%	79.7%	80.9%	87.1%	86.0%	83.0%	87.0%
PERCENT SUCCESSFUL ADULT HUNTERS	62.5%	53.9%	54.8%	57.2%	69.3%	68.9%	53.0%	56.1%
SAMPLE SIZES								
DUCK WINGS	1,071	987	2,054	3,167	891	1,245	1,243	1,025
GOOSE TAILS	163	80	202	203	124	100	126	118
QUESTIONNAIRES	1,486	744	1,260	863	1,082	778	1,222	728

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TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS--continued

	RHODE ISLAND		SOUTH CAROLINA		VERMONT		VIRGINIA[a]	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	8.42%	12.54%	14.52%	26.67%	16.81%	28.04%	21.76%	31.54%
DOMESTIC MALLARD	0.00	0.26	0.00	0.36	0.29	0.00	0.08	0.46
BLACK DUCK	23.18	20.98	3.15	3.15	22.32	25.00	13.56	17.41
BLACK X MALLARD	0.32	1.54	0.56	0.00	0.29	0.34	0.46	0.55
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	0.00	0.00	2.59	2.67	0.29	0.00	6.13	3.74
AMERICAN WIGEON	1.27	0.00	5.92	9.82	1.16	0.34	9.89	10.67
GREEN-WINGED TEAL	6.19	7.68	6.75	6.55	13.62	11.82	8.58	6.02
BLUE-WINGED/CINNAMON TEAL	0.16	0.00	1.85	0.97	5.51	6.42	0.46	3.28
NORTHERN SHOVELER	0.00	0.00	1.48	1.09	0.00	0.34	0.92	0.82
PINTAIL	0.32	0.00	2.50	1.09	0.00	1.69	5.06	2.37
WOOD DUCK	7.15	5.63	49.40	32.73	28.12	10.47	5.82	9.39
REDHEAD	0.16	0.26	0.09	0.24	0.00	0.00	0.08	0.09
CANVASBACK	0.00	2.81	0.00	2.91	0.00	0.68	0.38	0.09
GREATER SCAUP	20.01	33.00	0.56	0.24	1.16	0.68	1.23	2.01
LESSER SCAUP	7.79	3.84	1.76	0.12	1.16	0.34	1.38	0.73
RING-NECKED DUCK	0.16	0.00	5.18	9.12	4.35	2.70	8.74	6.29
GOLDENEYES	0.79	0.51	0.39	0.49	1.16	4.73	2.15	0.82
BUFFLEHEAD	0.64	0.51	1.76	0.61	1.45	2.37	6.67	2.74
RUDDY DUCK	0.16	0.00	0.19	0.97	0.29	0.34	3.37	0.37
OLDSQUAW	0.45	0.00	0.00	0.30	0.58	0.34	0.69	0.39
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	21.59	9.18	0.00	0.00	1.45	2.37	0.84	0.09
HOODED MERGANSERS	0.00	0.51	1.39	1.09	0.00	1.01	0.92	0.18
OTHER MERGANSERS	1.27	0.77	0.28	0.30	0.00	0.00	0.84	0.27
OTHER DUCKS	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	14,679	19,267	142,284	174,392	34,972	35,720	142,371	139,688
PERCENT CHANGE		+31%		+23%		+2%		-2%
SEASONAL DUCK HARVEST PER ADULT HUNTER	4.09	5.33	6.67	7.78	3.97	4.38	7.10	6.70
PERCENT CHANGE		+30%		+17%		+10%		-6%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	100.00%	100.00%	100.00%	100.00%	90.00%	100.00%	73.83%	87.88%
SNOW GOOSE	0.00	0.00	0.00	0.00	10.00	0.00	11.41	12.12
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	14.77	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	1,379	2,377	3,709	3,443	1,864	1,821	24,615	22,011
PERCENT CHANGE		+72%		-7%		-2%		-11%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.39	0.66	0.19	0.16	0.21	0.23	1.24	1.07
PERCENT CHANGE		+72%		-12%		+6%		-14%
COOT HARVEST (RETRIEVED KILL)	599	197	11,777	8,399	928	173	26,380	15,098
PERCENT CHANGE		-67%		-29%		-81%		-43%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.16	0.05	0.53	0.36	0.10	0.02	1.26	0.69
PERCENT CHANGE		-67%		-32%		-80%		-45%
TOTAL HUNTER DAYS	27,552	30,879	155,392	173,187	57,243	51,882	136,087	120,516
PERCENT CHANGE		+12%		+11%		-9%		-11%
DAYS PER ADULT HUNTER	7.51	8.39	7.17	7.61	6.40	6.26	6.68	5.69
PERCENT CHANGE		+12%		+6%		-2%		-15%
TOTAL DUCK STAMPS SOLD	3,553	3,583	21,029	21,861	8,851	8,067	19,670	20,877
PERCENT CHANGE		+1%		+4%		-9%		+6%
PERCENT SOLD TO NON-HUNTERS	1.84%	2.30%	2.07%	1.01%	3.85%	2.37%	4.66%	6.03%
TOTAL ADULT HUNTERS (POTENTIAL)	3,488	3,498	20,594	21,640	8,510	7,876	19,365	20,135
PERCENT CHANGE		0%		+5%		-7%		+4%
PERCENT ACTIVE ADULT HUNTERS	81.2%	84.5%	89.1%	88.6%	84.6%	83.3%	85.3%	82.2%
PERCENT SUCCESSFUL ADULT HUNTERS	54.4%	63.5%	71.2%	70.3%	53.9%	57.1%	72.2%	66.7%
SAMPLE SIZES								
DUCK WINGS	541	356	1,081	825	346	296	1,305	1,097
GOOSE TAILS	44	43	0	1	9	15	149	99
QUESTIONNAIRES	312	252	813	618	286	221	1,174	825

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TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS--continued

	WEST VIRGINIA		ATLANTIC FLYWAY TOTAL	
	1975	1976	1975	1976
DUCK SPECIES COMPOSITION				
MALLARD	17.45%	30.53%	22.21%	23.18%
DOMESTIC MALLARD	0.00	0.53	0.39	0.31
BLACK DUCK	11.49	24.74	14.40	15.09
BLACK X MALLARD	0.43	0.00	0.73	0.39
MOTTLED DUCK	0.00	0.00	0.70	0.77
GADWALL	0.43	0.00	1.96	1.97
AMERICAN WIGEON	0.43	1.58	4.75	4.78
GREEN-WINGED TEAL	0.43	2.63	7.03	6.89
BLUE-WINGED/CINNAMON TEAL	5.11	2.11	3.43	4.43
NORTHERN SHOVELER	0.00	0.00	1.02	0.73
PINTAIL	0.00	0.53	2.37	2.16
WOOD DUCK	61.28	34.74	16.74	14.31
REDHEAD	0.00	0.53	0.18	0.45
CANVASBACK	0.00	0.00	0.09	1.20
GREATER SCAUP	0.00	0.00	3.00	2.51
LESSER SCAUP	0.43	0.00	1.71	2.94
RING-NECKED DUCK	0.00	0.53	6.84	8.37
GOLDENEYES	1.28	1.05	0.86	1.09
BUFFLEHEAD	0.43	0.00	2.54	2.33
RUDDY DUCK	0.00	0.00	0.87	0.49
OLDSQUAW	0.43	0.00	1.26	0.78
EIDERS	0.00	0.00	0.80	0.86
SCOTERS	0.00	0.00	4.24	1.95
HOODED MERGANSERS	0.43	0.00	1.37	1.05
OTHER MERGANSERS	0.00	0.53	0.74	0.87
OTHER DUCKS	0.00	0.00	0.06	0.10
TOTAL	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	7,466	6,592	1,860,956	2,090,168
PERCENT CHANGE		-12%		+12%
SEASONAL DUCK HARVEST PER ADULT HUNTER	3.70	3.26	4.23	4.83
PERCENT CHANGE		-12%		+14%

GOOSE SPECIES COMPOSITION				
CANADA GOOSE	100.00%	100.00%	88.94%	95.51%
SNOW GOOSE	0.00	0.00	2.59	4.46
BLUE GOOSE	0.00	0.00	0.03	0.03
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	8.45	0.00
OTHER GEESE	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	354	507	395,514	379,633
PERCENT CHANGE		+43%		-4%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.18	0.25	0.91	0.89
PERCENT CHANGE		+43%		-2%
COOT HARVEST (RETRIEVED KILL)	410	705	165,635	125,940
PERCENT CHANGE		+72%		-24%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.20	0.33	0.36	0.28
PERCENT CHANGE		+71%		-23%
TOTAL HUNTER DAYS	9,991	8,935	2,854,855	2,893,085
PERCENT CHANGE		-11%		+1%
DAYS PER ADULT HUNTER	4.88	4.35	6.38	6.58
PERCENT CHANGE		-11%		+3%
TOTAL DUCK STAMPS SOLD	2,112	2,081	441,837	435,932
PERCENT CHANGE		-1%		-1%
PERCENT SOLD TO NON-HUNTERS	7.84%	6.09%	3.72%	4.09%
TOTAL ADULT HUNTERS (POTENTIAL)	1,946	1,954	425,395	418,083
PERCENT CHANGE		0%		-2%
PERCENT ACTIVE ADULT HUNTERS	81.9%	84.9%	84.0%	84.3%
PERCENT SUCCESSFUL ADULT HUNTERS	64.5%	64.4%	61.6%	62.9%
SAMPLE SIZES				
DUCK WINGS	235	190	16,352	15,816
GOOSE TAILS	5	2	3,208	2,567
QUESTIONNAIRES	320	202	15,150	9,692

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[a] Washington, D.C., hunters and harvest allocated to Maryland, North Carolina, and Virginia.

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TABLE C-6 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE MISSISSIPPI FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS.

	ALABAMA		ARKANSAS		ILLINOIS		INDIANA	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	23.07%	32.64%	73.63%	73.32%	48.72%	49.99%	37.29%	48.29%
DOMESTIC MALLARD	0.00	0.00	0.00	0.06	0.13	0.08	0.12	0.26
BLACK DUCK	5.80	6.71	0.59	0.67	1.61	2.90	5.53	8.35
BLACK X MALLARD	0.11	0.20	0.00	0.00	0.09	0.31	0.12	0.00
MOTTLED DUCK	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	17.36	18.17	5.97	8.94	3.82	4.05	2.65	4.24
AMERICAN WIGEON	6.33	4.61	1.87	1.00	3.02	3.13	3.91	1.54
GREEN-WINGED TEAL	6.22	5.93	4.79	2.61	7.66	6.99	6.98	3.84
BLUE-WINGED/CINNAMON TEAL	4.88	3.73	0.91	1.54	7.72	4.02	7.39	6.08
NORTHERN SHOVELER	1.78	0.27	0.90	0.83	0.72	1.22	0.92	0.13
PINTAIL	1.07	2.24	1.29	0.33	1.74	0.92	0.92	0.90
WOOD DUCK	17.17	17.70	5.42	7.16	13.47	9.81	16.58	3.78
REDHEAD	1.29	0.00	0.12	0.00	0.72	1.07	1.73	0.51
CANVASBACK	0.54	0.14	0.27	0.00	0.04	1.07	3.57	2.06
GREATER SCAUP	0.00	0.00	0.04	0.00	0.26	0.08	0.46	0.64
LESSER SCAUP	2.25	4.07	0.66	1.67	4.21	7.57	1.61	2.83
RING-NECKED DUCK	8.37	2.03	2.61	1.11	4.50	4.74	4.95	1.16
GOLDENEYES	0.43	0.41	0.04	0.06	0.30	0.38	2.88	11.30
BUFFLEHEAD	1.29	0.14	0.23	0.11	0.43	0.46	1.38	2.57
RUDDY DUCK	0.54	0.20	0.47	0.28	0.26	0.15	0.12	0.39
OLDSQUAW	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.07	0.04	0.00	0.13	0.00	0.12	0.00
HOODED MERGANSERS	1.07	0.68	0.12	0.33	0.34	0.54	0.81	0.64
OTHER MERGANSERS	0.43	0.00	0.00	0.00	0.13	0.54	0.00	0.51
OTHER DUCKS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	96,994	130,521	673,343	651,760	423,408	340,453	115,437	87,110
PERCENT CHANGE		+35%		-3%		-20%		-25%
SEASONAL DUCK HARVEST PER ADULT HUNTER	6.95	8.19	11.11	10.70	6.37	5.04	4.71	5.96
PERCENT CHANGE		+18%		-4%		-21%		+27%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	92.31%	93.55%	36.36%	68.42%	92.73%	96.48%	96.55%	100.00%
SNOW GOOSE	0.00	0.00	22.73	5.26	2.42	0.50	3.45	0.00
BLUE GOOSE	7.69	6.45	36.36	21.05	4.24	3.02	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	4.55	5.26	0.61	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	3,765	5,879	5,626	10,068	40,048	51,321	7,815	6,670
PERCENT CHANGE		+56%		+79%		+28%		-15%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.27	0.37	0.09	0.17	0.61	0.77	0.32	0.46
PERCENT CHANGE		+37%		+78%		+26%		+43%
COOT HARVEST (RETRIEVED KILL)	21,064	8,247	5,883	14,201	19,535	17,122	11,780	4,235
PERCENT CHANGE		-61%		+141%		-12%		-64%
SEASONAL COOT HARVEST PER ADULT HUNTER	1.45	0.50	0.09	0.22	0.28	0.24	0.46	0.28
PERCENT CHANGE		-66%		+141%		-14%		-40%
TOTAL HUNTER DAYS	106,418	117,337	539,124	499,035	550,882	508,382	167,736	110,220
PERCENT CHANGE		+10%		-7%		-8%		-34%
DAYS PER ADULT HUNTER	7.46	7.20	8.70	8.01	8.11	7.36	6.69	7.38
PERCENT CHANGE		-4%		-8%		-9%		+10%
TOTAL DUCK STAMPS SOLD	13,630	15,529	58,275	59,284	66,251	66,655	24,026	15,939
PERCENT CHANGE		+14%		+2%		+1%		-34%
PERCENT SOLD TO NON-HUNTERS	2.19%	1.88%	0.60%	1.80%	4.14%	3.21%	2.45%	12.41%
TOTAL ADULT HUNTERS (POTENTIAL)	13,332	15,237	57,925	58,217	63,508	64,515	23,437	13,961
PERCENT CHANGE		+14%		+1%		+2%		-40%
PERCENT ACTIVE ADULT HUNTERS	87.8%	87.5%	88.6%	82.2%	84.3%	84.6%	85.2%	84.0%
PERCENT SUCCESSFUL ADULT HUNTERS	71.8%	73.7%	77.7%	70.4%	68.9%	63.5%	62.3%	65.4%
SAMPLE SIZES								
DUCK WINGS	941	1,524	2,584	1,802	2,465	1,406	976	924
GOOSE TAILS	13	31	22	19	165	199	29	21
QUESTIONNAIRES	1,258	1,225	1,003	463	1,321	694	1,750	804

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TABLE C-6 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE MISSISSIPPI FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS--continued

	IOWA		KENTUCKY		LOUISIANA		MICHIGAN	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	38.88%	36.57%	52.10%	60.44%	18.70%	22.80%	42.94%	39.18%
DOMESTIC MALLARD	0.00	0.07	0.99	0.00	0.05	0.00	0.15	0.11
BLACK DUCK	0.14	0.41	10.74	11.52	0.05	0.13	3.42	3.57
BLACK X MALLARD	0.00	0.00	0.80	0.47	0.00	0.00	0.27	0.14
MOTTLED DUCK	0.00	0.00	0.00	0.00	1.94	2.89	0.00	0.00
GADWALL	2.40	6.96	12.13	2.82	11.45	10.87	0.72	0.79
AMERICAN WIGEON	3.51	2.69	2.19	2.59	5.10	4.76	2.05	2.38
GREEN-WINGED TEAL	11.92	11.30	1.39	3.25	16.50	16.23	5.67	7.40
BLUE-WINGED/CINNAMON TEAL	15.12	13.64	2.17	1.55	14.55	12.37	5.59	5.70
NORTHERN SHOVELER	0.66	0.41	0.00	0.00	4.93	4.36	0.19	0.25
PINTAIL	1.51	1.24	0.40	0.24	7.47	6.28	1.10	1.19
WOOD DUCK	19.48	17.29	4.38	4.42	10.17	8.11	9.62	12.92
REDHEAD	0.60	1.45	0.80	0.47	0.21	0.38	2.09	1.88
CANVASBACK	0.37	0.41	0.60	3.76	0.43	0.25	1.14	0.18
GREATER SCAUP	0.09	0.00	0.60	0.24	0.11	0.18	2.85	2.63
LESSER SCAUP	2.23	3.31	1.19	0.71	4.37	6.61	7.15	8.77
RING-NECKED DUCK	2.23	2.55	4.57	3.76	2.67	2.43	3.61	3.68
GOLDENEYES	0.06	0.90	[illegible] 79	0.24	0.02	0.08	4.11	2.85
BUFFLEHEAD	0.34	0.28	1 [illegible]	1.88	0.14	0.00	3.42	4.00
RUDDY DUCK	0.06	0.41	[illegible]	0.47	0.16	0.08	0.88	0.65
OLDSQUAW	0.03	0.00	0.00	0.00	0.00	0.03	0.11	0.18
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.03	0.07	0.00	0.00	0.00	0.00	1.10	0.54
HOODED MERGANSERS	0.23	0.07	0.99	0.94	0.43	0.96	0.61	0.54
OTHER MERGANSERS	0.14	0.00	0.20	0.24	0.48	0.18	1.14	0.47
OTHER DUCKS	0.00	0.00	0.00	0.00	0.07	0.05	0.04	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	308,243	235,411	77,735	60,869	1,736,135	1,905,579	360,647	456,745
PERCENT CHANGE		-24%		-22%		+10%		+27%
SEASONAL DUCK HARVEST PER ADULT HUNTER	5.09	4.20	5.84	4.13	15.29	14.91	3.40	5.40
PERCENT CHANGE		-18%		-29%		-3%		+59%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	25.06%	29.06%	100.00%	99.17%	0.00%	0.00%	98.67%	96.90%
SNOW GOOSE	32.32	30.77	0.00	0.00	13.42	14.29	0.67	0.00
BLUE GOOSE	41.92	33.33	0.00	0.83	60.98	61.91	0.67	3.10
WHITE-FRONTED GOOSE	0.70	6.84	0.00	0.00	25.61	23.81	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	48,074	24,637	15,712	17,591	89,144	76,434	21,228	26,792
PERCENT CHANGE		-49%		+12%		-14%		+26%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.80	0.45	1.20	1.21	0.80	0.61	0.20	0.32
PERCENT CHANGE		-45%		+1%		-24%		+58%
COOT HARVEST (RETRIEVED KILL)	11,162	7,518	2,136	914	279,537	377,398	51,489	22,788
PERCENT CHANGE		-33%		-57%		+35%		-56%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.18	0.13	0.15	0.06	2.36	2.83	0.47	0.26
PERCENT CHANGE		-27%		-61%		+20%		-44%
TOTAL HUNTER DAYS	477,304	384,795	98,569	103,196	967,135	1,061,337	651,167	588,252
PERCENT CHANGE		-19%		+5%		+10%		-10%
DAYS PER ADULT HUNTER	7.72	6.72	7.25	6.85	8.33	8.12	6.00	6.81
PERCENT CHANGE		-13%		-5%		-3%		+13%
TOTAL DUCK STAMPS SOLD	58,791	55,449	13,066	14,189	110,006	122,861	103,893	84,745
PERCENT CHANGE		-6%		+9%		+12%		-18%
PERCENT SOLD TO NON-HUNTERS	1.66%	3.45%	2.69%	0.76%	1.39%	0.60%	2.39%	4.71%
TOTAL ADULT HUNTERS (POTENTIAL)	57,815	53,536	12,715	14,081	108,477	122,124	101,410	80,754
PERCENT CHANGE		-7%		+11%		+13%		-20%
PERCENT ACTIVE ADULT HUNTERS	85.9%	84.9%	87.8%	90.3%	86.0%	85.8%	86.9%	87.9%
PERCENT SUCCESSFUL ADULT HUNTERS	69.7%	67.7%	70.1%	71.5%	79.1%	79.0%	61.9%	70.6%
SAMPLE SIZES								
DUCK WINGS	3,506	1,452	497	418	4,693	4,071	2,629	2,772
GOOSE TAILS	427	117	30	120	82	84	146	129
QUESTIONNAIRES	1,255	729	403	489	4,279	2,957	1,409	758

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TABLE C-6 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE MISSISSIPPI FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS--continued

	MINNESOTA		MISSISSIPPI		MISSOURI		OHIO	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	27.56%	27.08%	67.29%	59.38%	51.66%	59.60%	34.87%	36.60%
DOMESTIC MALLARD	0.03	0.00	0.00	0.00	0.12	0.28	0.22	0.30
BLACK DUCK	0.18	0.10	1.44	1.96	0.18	0.37	7.35	8.63
BLACK X MALLARD	0.00	0.20	0.06	0.20	0.06	0.00	0.56	0.50
MOTTLED DUCK	0.00	0.00	0.05	0.27	0.00	0.00	0.00	0.00
GADWALL	1.16	3.59	3.26	5.94	5.66	3.99	0.89	3.27
AMERICAN WIGEON	3.98	4.10	1.63	2.83	2.43	2.55	2.79	3.17
GREEN-WINGED TEAL	7.02	11.44	3.71	4.63	9.33	6.48	8.41	9.10
BLUE-WINGED/CINNAMON TEAL	15.81	8.70	1.21	1.29	7.44	3.83	8.71	5.90
NORTHERN SHOVELER	0.43	0.61	0.44	1.24	1.10	0.37	0.33	0.30
PINTAIL	1.66	0.81	0.56	0.41	1.89	1.95	1.23	1.59
WOOD DUCK	16.76	14.68	13.55	12.28	6.45	4.27	22.28	17.06
REDHEAD	1.31	2.28	0.13	0.00	0.85	1.02	1.23	1.19
CANVASBACK	0.48	1.82	0.06	0.20	0.06	0.46	0.67	0.79
GREATER SCAUP	0.28	0.35	0.19	0.00	0.06	0.19	0.45	1.09
LESSER SCAUP	5.23	10.37	1.00	0.95	6.94	6.41	3.90	4.36
RING-NECKED DUCK	14.37	9.31	4.01	7.93	4.56	4.73	1.23	1.89
GOLDENEYES	1.13	0.91	0.06	0.07	0.06	0.90	0.33	0.40
BUFFLEHEAD	1.74	1.82	0.19	0.00	0.30	0.46	1.23	0.89
RUDDY DUCK	0.35	0.86	0.00	0.00	0.12	0.65	1.00	2.08
OLDSQUAW	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
SCOTERS	0.15	0.05	0.00	0.00	0.12	0.00	0.11	0.20
HOODED MERGANSERS	0.28	0.71	1.07	0.47	0.49	0.19	0.56	0.40
OTHER MERGANSERS	0.05	0.20	0.06	0.00	0.06	1.21	1.67	0.10
OTHER DUCKS	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.10
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	1,018,760	609,451	327,491	369,681	355,754	224,958	145,707	156,260
PERCENT CHANGE		-40%		+13%		-37%		+7%
SEASONAL DUCK HARVEST PER ADULT HUNTER	6.05	4.73	10.32	12.22	5.80	3.67	3.51	3.71
PERCENT CHANGE		-22%		+18%		-37%		+6%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	76.96%	91.05%	64.29%	98.28%	63.72%	84.58%	95.87%	96.83%
SNOW GOOSE	12.17	5.22	14.29	0.00	18.80	8.88	0.83	1.59
BLUE GOOSE	7.39	3.73	21.43	1.72	15.41	6.08	3.31	1.59
WHITE-FRONTED GOOSE	3.48	0.00	0.00	0.00	2.07	0.47	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	79,289	67,826	6,369	9,395	107,414	68,104	12,196	10,416
PERCENT CHANGE		-14%		+48%		-37%		-15%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.48	0.53	0.20	0.32	1.77	1.13	0.30	0.25
PERCENT CHANGE		+12%		+55%		-37%		-16%
COOT HARVEST (RETRIEVED KILL)	77,530	44,009	11,765	7,164	10,404	4,450	17,787	16,059
PERCENT CHANGE		-43%		-39%		-57%		-10%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.44	0.33	0.36	0.23	0.16	0.07	0.41	0.37
PERCENT CHANGE		-26%		-36%		-57%		-11%
TOTAL HUNTER DAYS	1,180,310	751,104	255,373	252,824	521,227	404,013	296,004	297,298
PERCENT CHANGE		-33%		-1%		-22%		0%
DAYS PER ADULT HUNTER	6.86	6.01	7.87	8.18	8.31	6.45	6.97	6.90
PERCENT CHANGE		-12%		+4%		-22%		-1%
TOTAL DUCK STAMPS SOLD	163,716	125,037	30,618	29,383	59,105	59,601	41,819	41,823
PERCENT CHANGE		-24%		-4%		+1%		0%
PERCENT SOLD TO NON-HUNTERS	1.69%	1.57%	1.00%	1.65%	0.83%	1.78%	5.05%	3.69%
TOTAL ADULT HUNTERS (POTENTIAL)	160,949	123,074	30,312	28,838	58,614	58,540	39,707	40,280
PERCENT CHANGE		-24%		-5%		0%		+1%
PERCENT ACTIVE ADULT HUNTERS	91.4%	87.9%	86.6%	88.4%	89.4%	88.2%	86.0%	85.4%
PERCENT SUCCESSFUL ADULT HUNTERS	79.3%	70.9%	77.3%	78.7%	77.4%	68.8%	62.5%	63.6%
SAMPLE SIZES								
DUCK WINGS	3,973	1,976	1,621	1,511	1,800	1,096	985	1,090
GOOSE TAILS	230	134	14	58	532	214	121	63
QUESTIONNAIRES	2,303	1,585	878	582	1,327	780	1,426	1,031

TABLE C-6 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE MISSISSIPPI FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS—continued

	TENNESSEE		WISCONSIN		MISSISSIPPI FLYWAY TOTAL	
	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION						
MALLARD	57.33%	58.75%	34.19%	32.94%	38.28%	39.11%
DOMESTIC MALLARD	0.43	0.20	0.11	0.09	0.09	0.06
BLACK DUCK	8.25	13.28	1.64	1.32	1.42	1.89
BLACK X MALLARD	0.11	0.60	0.17	0.28	0.07	0.13
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.52	0.93
GADWALL	6.32	3.62	1.01	0.99	5.47	6.59
AMERICAN WIGEON	3.97	5.43	4.16	4.23	3.67	3.60
GREEN-WINGED TEAL	3.56	2.88	7.64	8.60	9.34	9.88
BLUE-WINGED/CINNAMON TEAL	1.38	1.75	17.73	12.74	10.73	8.06
NORTHERN SHOVELER	0.43	0.40	0.28	0.52	1.72	1.79
PINTAIL	0.75	0.20	1.32	1.88	2.96	2.68
WOOD DUCK	5.80	7.24	17.75	19.31	12.37	11.08
REDHEAD	0.54	0.00	1.23	1.55	0.75	0.85
CANVASBACK	1.29	0.40	0.26	0.85	0.47	0.57
GREATER SCAUP	0.11	0.60	0.26	0.33	0.32	0.40
LESSER SCAUP	1.93	0.20	3.17	5.22	3.80	5.61
RING-NECKED DUCK	4.72	3.62	6.15	4.98	5.36	3.91
GOLDENEYES	0.21	0.81	0.35	1.13	0.57	0.76
BUFFLEHEAD	1.29	0.00	1.19	1.79	0.85	0.82
RUDDY DUCK	0.54	0.00	0.60	0.47	0.34	0.36
OLDSQUAW	0.00	0.00	0.09	0.05	0.02	0.03
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.11	0.00	0.19	0.05	0.13	0.06
HOODED MERGANSERS	0.54	0.00	0.26	0.61	0.42	0.63
OTHER MERGANSERS	0.43	0.00	0.25	0.09	0.31	0.21
OTHER DUCKS	0.00	0.00	0.00	0.20	0.02	0.02
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	237,401	202,719	711,960	636,975	6,589,015	6,068,492
PERCENT CHANGE		-15%		-11%		-8%
SEASONAL DUCK HARVEST PER ADULT HUNTER	8.61	7.37	4.71	4.52	7.00	6.95
PERCENT CHANGE		-14%		-4%		-1%

GOOSE SPECIES COMPOSITION						
CANADA GOOSE	93.15%	94.12%	92.31%	96.04%	61.54%	73.77%
SNOW GOOSE	0.00	0.00	3.11	0.50	12.23	6.31
BLUE GOOSE	6.85	5.88	4.58	3.47	20.68	15.45
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	5.55	4.47
BRANT	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	10,911	42,776	68,709	45,957	516,300	463,866
PERCENT CHANGE		+292%		-33%		-10%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.40	1.58	0.46	0.33	0.56	0.54
PERCENT CHANGE		+294%		-28%		-3%
COOT HARVEST (RETRIEVED KILL)	5,914	7,737	118,968	66,867	644,954	598,709
PERCENT CHANGE		+31%		-44%		-7%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.21	0.27	0.76	0.46	0.66	0.66
PERCENT CHANGE		+31%		-40%		0%
TOTAL HUNTER DAYS	237,053	261,099	1,129,847	995,302	7,178,649	6,374,194
PERCENT CHANGE		+10%		-12%		-11%
DAYS PER ADULT HUNTER	8.40	9.29	7.31	6.91	7.46	7.14
PERCENT CHANGE		+11%		-5%		-4%
TOTAL DUCK STAMPS SOLD	26,613	26,854	146,925	137,575	916,734	854,924
PERCENT CHANGE		+1%		-6%		-7%
PERCENT SOLD TO NON-HUNTERS	0.95%	2.18%	1.66%	2.16%	1.93%	2.44%
TOTAL ADULT HUNTERS (POTENTIAL)	26,360	26,269	144,486	134,603	899,047	834,089
PERCENT CHANGE		0%		-7%		-7%
PERCENT ACTIVE ADULT HUNTERS	89.6%	86.3%	89.8%	87.9%	88.1%	86.6%
PERCENT SUCCESSFUL ADULT HUNTERS	74.8%	71.4%	75.8%	69.6%	73.5%	70.8%
SAMPLE SIZES						
DUCK WINGS	1,033	496	4,636	2,128	32,339	22,666
GOOSE TAILS	73	17	546	202	2,430	1,408
QUESTIONNAIRES	763	659	1,702	1,192	21,077	13,948

BEST DOCUMENT AVAILABLE

TABLE C-7 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE CENTRAL FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS.

	COLORADO[a]		KANSAS		MONTANA[a]		NEBRASKA	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	61.87%	48.61%	38.55%	38.83%	72.46%	60.97%	45.25%	53.06%
DOMESTIC MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK DUCK	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	3.96	6.22	9.60	10.49	8.28	10.81	5.66	10.85
AMERICAN WIGEON	5.32	7.26	5.16	6.25	6.00	5.48	5.87	4.38
GREEN-WINGED TEAL	13.20	17.09	18.77	18.68	2.90	8.55	15.46	14.05
BLUE-WINGED/CINNAMON TEAL	7.43	10.97	11.42	5.81	2.48	2.74	12.40	3.09
NORTHERN SHOVELER	1.78	2.15	1.91	2.39	2.48	3.23	2.10	1.24
PINTAIL	2.79	2.15	2.59	2.80	1.86	2.74	3.02	2.02
WOOD DUCK	0.20	0.45	1.61	1.48	0.00	0.65	2.39	1.57
REDHEAD	1.01	2.37	3.05	3.91	0.41	1.77	1.84	2.59
CANVASBACK	0.15	0.45	0.63	0.18	0.00	0.16	0.34	0.23
GREATER SCAUP	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.06
LESSER SCAUP	0.46	0.89	2.66	4.03	1.24	1.29	2.81	1.91
RING-NECKED DUCK	0.30	0.22	2.75	3.21	0.21	0.32	1.51	2.70
GOLDENEYES	1.01	0.30	0.55	0.12	1.66	1.29	0.21	0.51
BUFFLEHEAD	0.15	0.45	0.34	0.41	0.00	0.00	0.63	0.68
RUDDY DUCK	0.05	0.30	0.34	0.64	0.00	0.00	0.42	0.79
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.00	0.04	0.06	0.00	0.00	0.00	0.06
HOODED MERGANSERS	0.10	0.00	0.00	0.12	0.00	0.00	0.04	0.00
OTHER MERGANSERS	0.20	0.15	0.09	0.41	0.00	0.00	0.04	0.17
OTHER DUCKS	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	112,171	173,020	281,129	300,621	52,429	48,143	255,680	248,644
PERCENT CHANGE		+54%		+7%		-8%		-3%
SEASONAL DUCK HARVEST PER ADULT HUNTER	2.73	4.05	4.60	4.92	5.66	5.29	5.79	5.44
PERCENT CHANGE		+49%		+7%		-6%		-6%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	98.95%	98.76%	55.95%	57.32%	86.84%	100.00%	40.52%	67.53%
SNOW GOOSE	0.35	1.24	19.64	25.61	2.63	0.00	29.41	14.29
BLUE GOOSE	0.35	0.00	11.31	15.85	0.00	0.00	24.18	11.69
WHITE-FRONTED GOOSE	0.35	0.00	13.10	1.22	10.53	0.00	5.88	6.49
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	26,502	32,419	24,696	27,707	2,968	3,456	33,558	17,852
PERCENT CHANGE		+22%		+12%		+16%		-47%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.66	0.77	0.41	0.46	0.33	0.39	0.78	0.40
PERCENT CHANGE		+18%		+12%		+19%		-49%
COOT HARVEST (RETRIEVED KILL)	2,819	4,060	7,763	4,618	1,843	865	4,186	3,616
PERCENT CHANGE		+44%		-41%		-53%		-14%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.07	0.09	0.12	0.07	0.19	0.09	0.09	0.08
PERCENT CHANGE		+38%		-40%		-52%		-16%
TOTAL HUNTER DAYS	265,668	326,678	441,569	404,191	49,695	44,506	361,765	337,608
PERCENT CHANGE		+23%		-8%		-10%		-7%
DAYS PER ADULT HUNTER	6.31	7.47	7.07	6.47	5.24	4.78	8.01	7.22
PERCENT CHANGE		+18%		-8%		-9%		-10%
TOTAL DUCK STAMPS SOLD	39,079	40,953	58,005	58,220	8,848	8,748	41,978	44,000
PERCENT CHANGE		+5%		0%		-1%		+5%
PERCENT SOLD TO NON-HUNTERS	0.70%	1.64%	0.75%	1.09%	1.20%	1.88%	0.88%	2.08%
TOTAL ADULT HUNTERS (POTENTIAL)	38,805	40,281	57,570	57,585	8,742	8,584	41,609	43,085
PERCENT CHANGE		+4%		0%		-2%		+4%
PERCENT ACTIVE ADULT HUNTERS	84.7%	85.1%	81.4%	80.0%	78.2%	77.8%	83.6%	84.1%
PERCENT SUCCESSFUL ADULT HUNTERS	57.7%	63.9%	62.2%	62.5%	68.2%	66.4%	68.8%	65.6%
SAMPLE SIZES								
DUCK WINGS	1,888	1,316	2,551	1,766	483	620	2,387	1,779
GOOSE TAILS	286	242	168	82	38	45	153	77
QUESTIONNAIRES	1,373	910	1,059	702	356	244	916	768

TABLE C-7 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE CENTRAL FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS--continued

	NEW MEXICO[a]		NORTH DAKOTA		OKLAHOMA		SOUTH DAKOTA	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	31.19%	40.14%	45.47%	46.77%	38.68%	44.74%	46.06%	40.57%
DOMESTIC MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK DUCK	0.00	0.00	0.25	0.23	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	10.85	11.86	14.33	14.96	13.01	12.63	10.29	15.72
AMERICAN WIGEON	9.79	9.26	5.79	4.63	5.70	7.79	8.37	5.24
GREEN-WINGED TEAL	19.20	12.19	4.95	4.86	18.57	15.29	10.48	13.47
BLUE-WINGED/CINNAMON TEAL	10.13	4.05	8.63	9.81	5.47	3.45	9.52	5.69
NORTHERN SHOVELER	5.14	4.78	4.28	2.66	1.72	1.87	2.02	1.80
PINTAIL	7.38	12.84	10.27	7.44	2.38	1.79	4.04	2.70
WOOD DUCK	0.30	0.00	0.29	0.30	3.63	0.98	0.96	1.50
REDHEAD	1.21	0.98	2.26	1.67	2.99	2.81	2.40	3.44
CANVASBACK	0.90	0.16	0.50	1.37	0.78	0.86	0.77	0.15
GREATER SCAUP	0.00	0.16	0.04	0.00	0.11	0.00	0.00	0.00
LESSER SCAUP	0.45	0.65	1.72	4.78	1.66	2.88	2.12	6.44
RING-NECKED DUCK	1.21	1.14	0.55	0.38	3.76	2.96	1.92	0.75
GOLDENEYES	0.00	0.65	0.00	0.00	0.50	0.47	0.29	0.00
BUFFLEHEAD	1.06	0.16	0.34	0.69	0.39	0.78	0.48	0.75
RUDDY DUCK	0.75	0.00	0.34	0.46	0.39	0.16	0.19	1.20
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.15
HOODED MERGANSERS	0.00	0.16	0.00	0.00	0.17	0.23	0.00	0.45
OTHER MERGANSERS	0.45	0.65	0.00	0.00	0.11	0.16	0.00	0.00
OTHER DUCKS	0.00	0.16	0.00	0.00	0.00	0.08	0.10	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	53,712	55,502	372,893	327,534	259,836	223,409	201,353	142,006
PERCENT CHANGE		+3%		-12%		-14%		-29%
SEASONAL DUCK HARVEST PER ADULT HUNTER	7.00	7.83	5.98	5.44	7.11	6.27	4.64	4.54
PERCENT CHANGE		+12%		-9%		-12%		-2%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	36.92%	18.28%	20.14%	20.90%	70.73%	86.67%	38.63%	73.68%
SNOW GOOSE	56.92	77.42	55.59	54.01	14.63	4.00	33.89	15.04
BLUE GOOSE	6.15	1.08	23.13	24.25	10.57	1.33	26.54	11.28
WHITE-FRONTED GOOSE	0.00	0.00	1.14	0.84	4.07	8.00	0.71	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	3.23[b]	0.00	0.00	0.00	0.00	0.24[b]	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	3,377	4,587	176,619	109,109	22,948	13,935	63,782	43,346
PERCENT CHANGE		+36%		-38%		-39%		-32%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.45	0.66	2.89	1.85	0.64	0.40	1.50	1.41
PERCENT CHANGE		+47%		-36%		-38%		-6%
COOT HARVEST (RETRIEVED KILL)	2,542	1,225	14,137	6,538	7,233	4,119	9,539	3,807
PERCENT CHANGE		-52%		-54%		-43%		-60%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.32	0.17	0.22	0.11	0.19	0.11	0.21	0.12
PERCENT CHANGE		-48%		-52%		-42%		-45%
TOTAL HUNTER DAYS	58,673	48,753	495,138	402,727	280,902	236,629	305,567	241,717
PERCENT CHANGE		-17%		-19%		-16%		-21%
DAYS PER ADULT HUNTER	7.47	6.72	7.76	6.54	7.51	6.49	6.88	7.55
PERCENT CHANGE		-10%		-16%		-14%		+10%
TOTAL DUCK STAMPS SOLD	7,389	6,793	58,836	57,105	34,978	33,895	41,004	30,101
PERCENT CHANGE		-8%		-3%		-3%		-27%
PERCENT SOLD TO NON-HUNTERS	2.07%	1.65%	0.15%	0.62%	1.48%	0.93%	0.24%	1.98%
TOTAL ADULT HUNTERS (POTENTIAL)	7,236	6,681	58,808	56,751	34,460	33,580	40,906	29,505
PERCENT CHANGE		-8%		-3%		-3%		-28%
PERCENT ACTIVE ADULT HUNTERS	90.4%	82.7%	90.6%	90.5%	83.7%	82.5%	84.9%	81.9%
PERCENT SUCCESSFUL ADULT HUNTERS	75.4%	69.1%	84.2%	79.3%	68.1%	68.0%	74.1%	67.7%
SAMPLE SIZES								
DUCK WINGS	656	658	2,386	1,317	1,866	1,407	1,040	668
GOOSE TAILS	65	93	1,574	598	123	75	422	133
QUESTIONNAIRES	257	127	805	684	984	757	596	407

TABLE C-7 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE CENTRAL FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS.--continued

	TEXAS		WYOMING[a]		CENTRAL FLYWAY TOTAL	
	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION						
MALLARD	14.15%	18.25%	63.77%	61.20%	31.52%	33.93%
DOMESTIC MALLARD	0.00	0.02	0.00	0.00	0.00	0.01
BLACK DUCK	0.00	0.00	0.00	0.00	0.03	0.03
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.01
MOTTLED DUCK	6.12	4.32	0.00	0.00	2.71	1.89
GADWALL	9.23	11.19	4.75	6.40	9.75	11.51
AMERICAN WIGEON	6.38	7.22	8.28	7.51	6.27	6.52
GREEN-WINGED TEAL	25.08	22.97	8.14	9.60	18.27	17.44
BLUE-WINGED/CINNAMON TEAL	7.94	6.73	4.07	3.48	8.50	6.33
NORTHERN SHOVELER	5.08	5.31	2.31	0.83	3.69	3.55
PINTAIL	16.70	10.85	2.44	2.23	9.99	6.87
WOOD DUCK	1.88	3.18	0.00	0.00	1.63	1.92
REDHEAD	1.92	1.39	0.54	2.78	2.10	2.10
CANVASBACK	0.77	0.85	0.54	0.42	0.65	0.69
GREATER SCAUP	0.09	0.05	0.00	0.00	0.06	0.03
LESSER SCAUP	1.66	3.80	0.41	0.28	1.80	3.50
RING-NECKED DUCK	2.17	2.80	0.27	0.97	1.93	2.20
GOLDENEYES	0.04	0.19	2.99	3.20	0.27	0.28
BUFFLEHEAD	0.24	0.26	0.14	0.28	0.33	0.44
RUDDY DUCK	0.22	0.19	0.54	0.42	0.28	0.38
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.03	0.00	0.00	0.00	0.04
HOODED MERGANSERS	0.13	0.21	0.00	0.00	0.08	0.15
OTHER MERGANSERS	0.18	0.06	0.81	0.42	0.13	0.13
OTHER DUCKS	0.02	0.15	0.02	0.00	0.02	0.09
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	1,295,769	1,212,497	46,667	38,042	2,931,626	2,769,418
PERCENT CHANGE		-6%		-18%		-6%
SEASONAL DUCK HARVEST PER ADULT HUNTER	9.33	8.25	6.24	4.59	6.49	6.18
PERCENT CHANGE		-12%		-27%		-5%

GOOSE SPECIES COMPOSITION						
CANADA GOOSE	18.20%	20.56%	100.00%	100.00%	30.41%	38.24%
SNOW GOOSE	43.37	39.72	0.00	0.00	40.85	34.97
BLUE GOOSE	20.75	24.42	0.00	0.00	20.30	19.15
WHITE-FRONTED GOOSE	17.69	14.53	0.00	0.00	8.42	7.26
BRANT	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.77[b]	0.00	0.00	0.03[b]	0.38[b]
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	226,529	207,290	2,201	3,391	583,179	463,092
PERCENT CHANGE		-8%		+54%		-21%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	1.66	1.44	0.30	0.42	1.31	1.05
PERCENT CHANGE		-13%		+39%		-20%
COOT HARVEST (RETRIEVED KILL)	35,291	31,225	1,121	552	86,474	60,625
PERCENT CHANGE		-12%		-51%		-30%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.25	0.21	0.14	0.06	0.18	0.13
PERCENT CHANGE		-16%		-56%		-29%
TOTAL HUNTER DAYS	888,897	910,537	47,571	58,690	3,195,445	3,012,036
PERCENT CHANGE		+2%		+23%		-6%
DAYS PER ADULT HUNTER	6.25	6.05	6.22	6.91	6.91	6.57
PERCENT CHANGE		-3%		+11%		-5%
TOTAL DUCK STAMPS SOLD	133,307	141,840	7,134	8,006	430,618	429,661
PERCENT CHANGE		+6%		+12%		0%
PERCENT SOLD TO NON-HUNTERS	1.74%	2.32%	1.19%	2.30%	1.03%	1.39%
TOTAL ADULT HUNTERS (POTENTIAL)	130,987	138,549	7,049	7,822	426,172	422,423
PERCENT CHANGE		+6%		+11%		-1%
PERCENT ACTIVE ADULT HUNTERS	82.4%	81.1%	84.6%	82.4%	84.2%	83.1%
PERCENT SUCCESSFUL ADULT HUNTERS	71.9%	69.1%	71.0%	63.6%	70.5%	68.4%
SAMPLE SIZES						
DUCK WINGS	4,966	6,517	737	719	18,960	16,767
GOOSE TAILS	588	647	29	45	3,446	2,037
QUESTIONNAIRES	6,961	5,510	369	235	13,676	10,344

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[a] includes only that part of the State lying within the Central Flyway.

[b] Ross' geese.

TABLE C-8 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE PACIFIC FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS.

	ARIZONA		CALIFORNIA		COLORADO[a]		IDAHO	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	8.45%	15.41%	14.12%	15.24%	75.57%	70.92%	72.26%	70.66%
DOMESTIC MALLARD	0.00	0.28	0.08	0.00	0.50	0.00	0.00	0.06
BLACK DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	6.63	3.08	2.52	1.60	0.50	2.45	3.36	3.68
AMERICAN WIGEON	8.29	6.72	9.73	13.84	4.28	5.98	5.57	3.98
GREEN-WINGED TEAL	24.52	24.58	13.27	18.75	8.06	7.61	6.38	5.90
BLUE-WINGED/CINNAMON TEAL	10.03	12.33	2.71	2.11	1.76	1.63	1.34	2.47
NORTHERN SHOVELER	11.35	5.95	9.52	8.52	0.50	0.54	0.81	1.15
PINTAIL	14.83	13.59	37.96	33.12	2.52	2.45	5.57	5.72
WOOD DUCK	0.08	0.07	0.91	1.20	0.00	0.27	1.01	0.90
REDHEAD	3.89	4.97	0.30	0.29	0.50	0.82	0.87	0.96
CANVASBACK	1.66	1.75	1.44	1.53	0.00	0.00	0.13	0.42
GREATER SCAUP	0.00	0.00	0.13	0.39	0.00	0.00	0.13	0.00
LESSER SCAUP	1.08	1.54	0.31	1.06	0.00	0.54	0.27	0.24
RING-NECKED DUCK	2.82	2.94	0.75	0.83	1.51	2.72	0.27	0.48
GOLDENEYES	0.17	0.84	0.08	0.20	3.53	2.45	1.41	1.93
BUFFLEHEAD	1.24	1.19	0.40	0.17	0.50	0.54	0.07	0.60
RUDDY DUCK	4.64	3.57	0.70	1.03	0.25	0.54	0.07	0.30
OLDSQUAW	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.14	0.00	0.01	0.00	0.00	0.00	0.00
HOODED MERGANSERS	0.00	0.00	0.01	0.00	0.00	0.00	0.07	0.00
OTHER MERGANSERS	0.17	0.28	0.04	0.09	0.00	0.54	0.40	0.54
OTHER DUCKS	0.08	0.77	0.06	0.01	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	77,147	76,998	1,959,298	2,077,457	24,275	28,684	304,423	282,501
PERCENT CHANGE		0%		+6%		+18%		-7%
SEASONAL DUCK HARVEST PER ADULT HUNTER	6.39	5.95	13.51	15.34	5.03	5.53	8.34	7.67
PERCENT CHANGE		-7%		+14%		+10%		-8%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	83.33%	76.00%	34.02%	24.63%	100.00%	100.00%	100.00%	100.00%
SNOW GOOSE	12.50	24.00	44.74	52.63	0.00	0.00	0.00	0.00
BLUE GOOSE	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	4.17	0.00	16.73	19.37	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	3.76[b]	3.16[b]	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	2,050	1,137	180,811	235,377	721	1,018	16,412	14,758
PERCENT CHANGE		-45%		+30%		+41%		-10%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.17	0.09	1.25	1.75	0.15	0.20	0.45	0.40
PERCENT CHANGE		-48%		+39%		+31%		-11%
COOT HARVEST (RETRIEVED KILL)	3,071	3,453	128,634	83,437	487	626	8,359	17,125
PERCENT CHANGE		+12%		-35%		+29%		+105%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.24	0.26	0.85	0.59	0.10	0.12	0.22	0.45
PERCENT CHANGE		+5%		-31%		+20%		+104%
TOTAL HUNTER DAYS	63,230	71,847	1,149,937	1,115,589	28,566	31,238	275,101	249,266
PERCENT CHANGE		+14%		-3%		+9%		-9%
DAYS PER ADULT HUNTER	5.06	5.36	7.66	7.95	5.71	5.82	7.28	6.53
PERCENT CHANGE		+6%		+4%		+2%		-10%
TOTAL DUCK STAMPS SOLD	11,924	12,642	143,289	135,268	4,633	5,024	35,589	35,158
PERCENT CHANGE		+6%		-6%		+8%		-1%
PERCENT SOLD TO NON-HUNTERS	3.50%	2.54%	3.56%	4.62%	0.70%	1.64%	2.29%	0.16%
TOTAL ADULT HUNTERS (POTENTIAL)	11,507	12,321	138,188	129,019	4,601	4,942	34,774	35,102
PERCENT CHANGE		+7%		-7%		+7%		+1%
PERCENT ACTIVE ADULT HUNTERS	79.2%	79.3%	87.1%	89.1%	91.6%	86.2%	84.2%	80.3%
PERCENT SUCCESSFUL ADULT HUNTERS	60.9%	61.7%	76.2%	79.8%	67.4%	71.4%	71.5%	65.8%
SAMPLE SIZES								
DUCK WINGS	1,207	1,428	8,429	6,981	397	368	1,489	1,660
GOOSE TAILS	24	25	532	475	4	3	109	90
QUESTIONNAIRES	974	512	4,768	3,573	306	170	751	403

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TABLE C-8 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE PACIFIC FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS--continued

	MONTANA[a]		NEVADA		NEW MEXICO[a]		OREGON	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOS...								
MALLARD	60.12%	58.44%	23.47%	28.79%	45.36%	36.00%	31.61%	35.43%
DOMESTIC MALLARD	0.58	0.00	0.00	0.00	0.00	0.00	0.04	0.00
BLACK DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	3.89	3.65	6.36	4.54	2.19	10.40	2.36	2.02
AMERICAN WIGEON	7.22	5.13	8.63	11.19	3.28	17.60	18.63	21.27
GREEN-WINGED TEAL	7.69	7.30	17.84	23.81	19.67	8.80	12.95	16.33
BLUE-WINGED/CINNAMON TEAL	2.04	2.61	3.66	7.31	10.93	16.80	0.48	0.08
NORTHERN SHOVELER	2.53	1.91	7.09	2.33	1.09	0.80	3.84	1.12
PINTAIL	4.96	4.00	20.03	12.85	4.37	3.20	19.55	17.60
WOOD DUCK	0.68	1.57	0.44	0.44	0.00	0.00	1.84	1.20
REDHEAD	1.17	1.04	4.17	3.77	4.37	1.60	0.81	0.52
CANVASBACK	0.29	1.04	4.03	2.33	1.64	0.00	1.37	0.60
GREATER SCAUP	0.20	0.09	0.07	0.00	0.00	0.00	0.96	0.67
LESSER SCAUP	3.31	5.91	0.37	0.33	0.55	0.00	1.14	0.75
RING-NECKED DUCK	0.88	1.74	1.46	1.00	3.83	0.80	1.44	0.90
GOLDENEYES	3.21	3.13	0.22	0.11	0.00	0.80	0.15	0.00
BUFFLEHEAD	0.49	1.13	0.22	0.00	0.55	0.00	1.59	0.38
RUDDY DUCK	0.00	0.44	1.90	0.78	1.64	0.80	0.96	0.45
OLDSQUAW	0.00	0.09	0.00	0.00	0.00	0.00	0.04	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.19	0.17	0.00	0.11	0.00	0.00	0.00	0.30
HOODED MERGANSERS	0.10	0.26	0.00	0.00	0.00	0.00	0.11	0.00
OTHER MERGANSERS	0.58	0.35	0.03	0.33	0.55	2.40	0.15	0.38
OTHER DUCKS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	127,922	166,482	127,571	111,179	4,509	7,851	455,708	480,792
PERCENT CHANGE		+30%		-13%		+74%		+6%
SEASONAL DUCK HARVEST PER ADULT HUNTER	5.87	7.56	8.93	8.22	4.30	7.46	7.96	8.78
PERCENT CHANGE		+29%		-8%		+74%		+10%

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GOOSE SPECIES COMPOSITION								
CANADA GOOSE	75.00%	91.67%	84.62%	65.71%	50.00%	100.00%	76.82%	71.22%
SNOW GOOSE	22.22	8.33	15.39	31.43	0.00	0.00	10.73	26.62
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	2.78	0.00	0.00	0.00	0.00	0.00	9.00	1.44
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	3.11	0.00
OTHER GEESE	0.00	0.00	0.00	2.86[b]	50.00[b]	0.00	0.35[b]	0.72[b]
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	9,332	8,260	7,453	6,618	47	86	51,364	47,467
PERCENT CHANGE		-11%		-11%		+83%		-8%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.43	0.38	0.52	0.49	0.04	0.08	0.90	0.87
PERCENT CHANGE		-13%		-6%		+82%		-3%
COOT HARVEST (RETRIEVED KILL)	2,023	2,206	5,748	4,095	83	85	19,200	15,396
PERCENT CHANGE		+9%		-29%		+2%		-20%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.09	0.10	0.39	0.29	0.08	0.08	0.32	0.27
PERCENT CHANGE		+8%		-25%		+3%		-16%
TOTAL HUNTER DAYS	131,140	154,105	92,262	78,132	5,313	6,713	438,496	367,905
PERCENT CHANGE		+18%		-15%		+26%		-16%
DAYS PER ADULT HUNTER	5.82	6.76	6.24	5.58	4.89	6.16	7.40	6.49
PERCENT CHANGE		+16%		-11%		+26%		-12%
TOTAL DUCK STAMPS SOLD	20,991	21,366	13,856	13,146	1,020	1,019	55,969	53,108
PERCENT CHANGE		+2%		-5%		0%		-4%
PERCENT SOLD TO NON-HUNTERS	1.20%	1.88%	1.80%	2.04%	2.07%	1.65%	1.88%	1.82%
TOTAL ADULT HUNTERS (POTENTIAL)	20,739	20,944	13,607	12,878	999	1,002	54,524	52,141
PERCENT CHANGE		+1%		-5%		0%		-4%
PERCENT ACTIVE ADULT HUNTERS	82.2%	82.4%	82.6%	82.4%	75.4%	79.8%	85.2%	82.8%
PERCENT SUCCESSFUL ADULT HUNTERS	66.1%	69.3%	70.1%	71.4%	52.3%	68.4%	70.3%	69.7%
SAMPLE SIZES								
DUCK WINGS	1,028	1,150	1,368	903	183	125	2,711	1,335
GOOSE TAILS	72	60	26	35	2	0	289	139
QUESTIONNAIRES	1,120	477	868	835	221	169	1,507	1,218

TABLE C-8 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE PACIFIC FLYWAY DURING THE 1975 AND 1976 HUNTING SEASONS—continued.

	UTAH		WASHINGTON		WYOMING[a]		PACIFIC FLYWAY TOTAL	
	1975	1976	1975	1976	1975	1976	1975	1976
DUCK SPECIES COMPOSITION								
MALLARD	19.94%	21.24%	52.39%	47.18%	52.66%	68.06%	28.25%	28.72%
DOMESTIC MALLARD	0.04	0.00	0.08	0.00	0.00	0.00	0.08	0.01
BLACK DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	7.65	6.33	1.35	1.29	12.77	6.94	3.20	2.39
AMERICAN WIGEON	6.63	6.96	14.37	17.86	8.51	8.33	10.52	13.33
GREEN-WINGED TEAL	17.51	19.45	11.92	15.62	4.26	6.02	15.53	16.90
BLUE-WINGED/CINNAMON TEAL	3.99	4.17	0.38	0.17	3.72	1.39	2.33	2.20
NORTHERN SHOVELER	15.55	8.97	2.07	2.24	1.60	0.93	7.51	5.80
PINTAIL	21.75	21.24	10.00	9.64	2.66	2.78	25.71	22.92
WOOD DUCK	0.11	0.00	0.11	0.04	0.00	0.00	0.79	0.89
REDHEAD	3.52	4.92	1.32	0.62	1.60	0.00	1.09	1.00
CANVASBACK	0.83	1.34	0.61	0.66	0.00	0.93	1.17	1.21
GREATER SCAUP	0.07	0.00	0.63	0.42	0.00	0.00	0.29	0.33
LESSER SCAUP	0.58	1.94	1.09	1.04	1.06	0.00	0.64	1.22
RING-NECKED DUCK	0.27	0.09	1.24	1.25	0.53	0.46	0.87	0.90
GOLDENEYES	0.11	0.00	1.35	0.42	9.04	2.78	0.51	0.46
BUFFLEHEAD	0.18	0.22	0.94	0.75	1.06	0.00	0.58	0.36
RUDDY DUCK	0.99	2.98	0.11	0.17	0.00	0.46	0.72	0.98
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.04	0.00	0.04	0.08	0.00	0.00	0.01	0.07
HOODED MERGANSERS	0.00	0.00	0.08	0.50	0.00	0.00	0.04	0.08
OTHER MERGANSERS	0.29	0.30	0.03	0.21	0.53	0.93	0.13	0.22
OTHER DUCKS	0.00	0.06	0.00	0.00	0.00	0.00	0.02	0.23
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	411,167	366,039	526,400	544,656	12,460	10,178	4,030,870	4,152,787
PERCENT CHANGE		-11%		+3%		-18%		+3%
SEASONAL DUCK HARVEST PER ADULT HUNTER	9.95	8.60	7.03	7.62	5.58	4.17	9.80	10.43
PERCENT CHANGE		-14%		+9%		-25%		+6%

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GOOSE SPECIES COMPOSITION								
CANADA GOOSE	97.85%	98.94%	88.78%	95.83%	100.00%	93.75%	56.62%	47.19%
SNOW GOOSE	2.15	1.06	1.87	2.50	0.00	6.25	28.25	37.89
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00
WHITE-FRONTED GOOSE	0.00	0.00	5.61	0.00	0.00	0.00	11.60	12.45
BRANT	0.00	0.00	3.74	1.67	0.00	0.00	0.94	0.33
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	2.18[b]	2.16[b]
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	14,680	13,185	37,763	43,023	1,169	753	321,782	371,682
PERCENT CHANGE		-10%		+14%		-36%		+16%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.36	0.31	0.51	0.60	0.53	0.31	0.79	0.94
PERCENT CHANGE		-13%		+19%		-41%		+19%
COOT HARVEST (RETRIEVED KILL)	13,702	9,906	7,712	6,870	136	87	189,116	143,296
PERCENT CHANGE		-28%		-11%		-36%		-24%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.32	0.22	0.10	0.09	0.06	0.03	0.44	0.35
PERCENT CHANGE		-30%		-7%		-41%		-22%
TOTAL HUNTER DAYS	337,636	299,210	550,975	553,385	13,146	10,426	3,085,852	2,937,816
PERCENT CHANGE		-11%		0%		-21%		-5%
DAYS PER ADULT HUNTER	7.89	6.79	7.11	7.47	5.69	4.13	7.25	7.12
PERCENT CHANGE		-14%		+5%		-27%		-2%
TOTAL DUCK STAMPS SOLD	39,652	40,650	72,189	69,573	2,152	2,378	400,864	388,340
PERCENT CHANGE		+3%		-5%		+11%		-3%
PERCENT SOLD TO NON-HUNTERS	0.72%	0.33%	1.20%	0.68%	1.19%	2.30%	2.27%	2.32%
TOTAL ADULT HUNTERS (POTENTIAL)	39,367	40,524	71,323	69,107	2,126	2,323	391,755	379,323
PERCENT CHANGE		+3%		-5%		+9%		-3%
PERCENT ACTIVE ADULT HUNTERS	88.8%	89.2%	92.6%	81.0%	81.1%	80.7%	85.2%	84.9%
PERCENT SUCCESSFUL ADULT HUNTERS	77.2%	75.3%	68.7%	66.1%	67.8%	62.8%	72.3%	72.4%
SAMPLE SIZES								
DUCK WINGS	2,759	1,342	2,659	2,408	188	216	22,418	17,916
GOOSE TAILS	93	94	214	120	14	16	1,379	1,057
QUESTIONNAIRES	674	735	1,223	878	277	135	12,689	9,105

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[a] Includes only that portion of the State lying within the Pacific Flyway.

[b] Ross' geese.

BEST DOCUMENT AVAILABLE

TABLE C-9 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN ALASKA AND FOR THE ENTIRE UNITED STATES DURING THE 1975 AND 1976 HUNTING SEASONS.

	ALASKA		UNITED STATES TOTAL	
	1975	1976	1975	1976
DUCK SPECIES COMPOSITION				
MALLARD	23.44%	27.62%	32.39%	33.05%
DOMESTIC MALLARD	0.00	0.00	0.10	0.07
BLACK DUCK	0.00	0.00	2.34	2.84
BLACK X MALLARD	0.00	0.00	0.12	0.11
MOTTLED DUCK	0.00	0.00	0.82	0.82
GADWALL	0.56	0.94	5.25	5.66
AMERICAN WIGEON	17.75	13.64	6.14	7.02
GREEN-WINGED TEAL	14.77	13.81	12.39	12.80
BLUE-WINGED/CINNAMON TEAL	0.00	0.34	7.20	5.59
NORTHERN SHOVELER	5.76	7.76	3.53	3.11
PINTAIL	24.06	24.55	10.24	9.06
WOOD DUCK	0.00	0.00	7.79	6.99
REDHEAD	0.07	0.00	1.02	1.06
CANVASBACK	0.35	0.43	0.64	0.86
GREATER SCAUP	3.26	1.11	0.60	0.61
LESSER SCAUP	2.84	3.24	2.34	3.64
RING-NECKED DUCK	0.62	0.00	3.70	3.36
GOLDENEYES	2.50	2.39	0.54	0.65
BUFFLEHEAD	2.15	1.71	0.89	0.84
RUDDY DUCK	0.00	0.00	0.49	0.55
OLDSQUAW	0.07	0.43	0.17	0.13
EIDERS	0.00	0.00	0.10	0.12
SCOTERS	1.60	1.02	0.58	0.33
HOODED MERGANSERS	0.00	0.09	0.33	0.44
OTHER MERGANSERS	0.14	0.51	0.28	0.29
OTHER DUCKS	0.07	0.43	0.03	0.25
TOTAL	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	70,580	109,909	15,483,047	15,190,754
PERCENT CHANGE		+56%		-2%
SEASONAL DUCK HARVEST PER ADULT HUNTER	4.39	5.69	6.84	6.99
PERCENT CHANGE		+30%		+2%

GOOSE SPECIES COMPOSITION				
CANADA GOOSE	83.72%	50.66%	56.81%	62.90%
SNOW GOOSE	0.00	0.66	22.01	20.63
BLUE GOOSE	0.00	0.00	12.40	9.48
WHITE-FRONTED GOOSE	10.85	9.21	6.36	6.02
BRANT	2.33	11.84	2.01	0.17
OTHER GEESE[a]	3.10	27.63	0.41	0.80
TOTAL	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	11,564	13,979	1,828,339	1,692,252
PERCENT CHANGE		+21%		-7%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.72	0.73	0.82	0.79
PERCENT CHANGE		+1%		-4%
COOT HARVEST (RETRIEVED KILL)	824	1,105	1,087,003	929,665
PERCENT CHANGE		+34%		-14%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.05	0.05	0.46	0.41
PERCENT CHANGE		+12%		-11%
TOTAL HUNTER DAYS	62,268	89,817	16,377,069	15,306,948
PERCENT CHANGE		+44%		-7%
DAYS PER ADULT HUNTER	3.74	4.49	7.07	6.89
PERCENT CHANGE		+20%		-3%
TOTAL DUCK STAMPS SOLD	16,310	18,455	2,206,363	2,127,312
PERCENT CHANGE		+13%		-4%
PERCENT SOLD TO NON-HUNTERS	6.02%	0.35%	2.21%	2.59%
TOTAL ADULT HUNTERS (POTENTIAL)	15,328	18,390	2,157,697	2,072,308
PERCENT CHANGE		+20%		-4%
PERCENT ACTIVE ADULT HUNTERS	71.6%	73.0%	85.9%	85.0%
PERCENT SUCCESSFUL ADULT HUNTERS	54.9%	60.0%	70.2%	68.9%
SAMPLE SIZES				
DUCK WINGS	1,442	1,173	91,511	74,338
GOOSE TAILS	129	152	10,592	7,221
QUESTIONNAIRES	1,054	564	63,646	43,653

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[a] Ross' geese in Central and Pacific Flyways; Emperor geese in Alaska.

Table C-10. Numbers of teal harvested (retrieved kill), with percent species composition, during the 1975 and 1976 September teal seasons.

	1975				1976			
	Numbers harvested	% green-winged teal	% blue-winged/cinnamon teal	Wings received	Numbers harvested	% green-winged teal	% blue-winged/cinnamon teal	Wings received
Alabama	4,110	--	100.0	48	3,405	1.1	98.9	87
Arkansas	8,123	25.0	75.0	52	10,351	10.3	89.7	29
Illinois	24,092	14.3	85.7	244	13,806	29.1	70.9	148
Indiana	6,876	6.9	93.1	159	4,273	18.1	81.9	182
Kentucky	1,529	--	100.0	4	1,204	33.3	66.7	3
Louisiana	128,760	11.7	88.3	642	138,063	11.7	88.3	409
Mississippi	3,814	6.7	93.3	45	2,906	5.0	95.0	40
Missouri	26,545	9.3	90.7	279	10,036	28.8	71.2	66
Ohio	8,236	10.9	89.1	138	6,858	17.5	82.5	126
Tennessee	2,823	1.8	98.2	110	4,901	27.3	72.7	11
Mississippi Flyway Total	214,908	11.5	88.5	1,721	195,803	14.33	85.67	1,101
Colorado	8,144	41.9	58.1	62	17,181	43.6	56.4	101
Kansas	33,036	27.6	72.4	463	20,587	40.0	60.0	170
New Mexico	6,826	27.6	72.4	76	2,126	16.7	83.3	66
Oklahoma	13,863	26.5	73.5	155	8,426	25.1	74.9	171
Texas	75,140	20.4	79.6	657	72,475	24.4	75.6	676
Central Flyway Total	137,010	24.4	75.6	1,413	120,795	29.71	70.29	1,184
United States Total	351,918	16.5	83.5	3,134	316,598	20.20	79.80	2,285

WATERFOWL STATUS REPORT, 1978

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Compiled and edited by

Albert N. Novara
Sharon L. Rhoades
Betty I. Hodges
K. Duane Norman

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Waterfowl Status Report, 1978

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Office of Migratory Bird Management
Section of Waterfowl Population Surveys
Laurel, Maryland 20708

This report contains information from the 1977-78 midwinter waterfowl survey, the 1978 waterfowl breeding population and production surveys, and the waterfowl harvest surveys for the 1977-78 hunting season. This information was provided by the U.S. Fish and Wildlife Service, the Canadian Wildlife Service, and various cooperating State wildlife conservation agencies. Winter surveys are composed of the midwinter survey reports submitted from each of the four flyways and the midwinter survey covering portions of Mexico. Major areas covered in the Mexico report include the east and west coasts as well as the central and interior highlands. The breeding ground surveys section is composed of many individual reports that provide breeding population and production estimates for most waterfowl species within a major portion of their breeding range. The waterfowl harvest survey provides estimates of waterfowl hunting activity and success. Information from surveys of the wintering and breeding populations of waterfowl, coupled with data from the annual harvest surveys, are instrumental in developing annual hunting regulations for waterfowl.

Credit has been given to each individual or organization that submitted a report. Although some of the narrative statements have been condensed and a few tables deleted or condensed if they contained data presented elsewhere in this report, the essential information from each report has been retained. The breeding grounds survey strata (Fig. 1) for areas surveyed by the Fish and Wildlife Service have been renumbered since 1973.

Winter Survey

Each year during January a survey of waterfowl on their wintering grounds is completed by the U.S. Fish and Wildlife Service and the Canadian Wildlife Service with assistance from State conservation departments, other Federal agencies, and private individuals. All important waterfowl wintering areas in the United States and Mexico are surveyed. Data provided in the present report are comparable to previous years unless otherwise noted. This survey primarily monitors annual changes in waterfowl distribution on the wintering grounds within the United States and Mexico and indicates annual population trends. This survey has additional importance in providing the only annual population estimate for some waterfowl species. Data from these surveys appear in Tables A-1, A-2, and A-3. The following are summaries of flyway winter survey reports and the Mexico report.

Pacific Flyway

Data supplied by James C. Bartonek
U.S. Fish and Wildlife Service

The annual winter waterfowl survey was scheduled for 5-9 January 1978 but was actually conducted between 27 December 1977 and 27 January 1978. Fog hampered surveys throughout much of Washington and along the Columbia River in the John Day-Umatilla area in adjoining Oregon. Weather also hindered surveys in eastern Idaho and western Colorado but coverages were believed to be complete. California had generally good survey conditions; however, coastal bays of Marin and Sonoma counties and the southern portion of San Francisco Bay were not surveyed because of recurrent storms and fog. Recent rainfall and runoff in California produced an abundance of habitat which resulted in a dispersal of birds during the survey period. Although the drought was broken throughout much of the West, shifts in concentrations of birds from traditional areas indicated that habitat conditions had not been restored at the time of the survey. In general, cooperators believed the coverage was adequate and reflected the population status of waterfowl within their States.

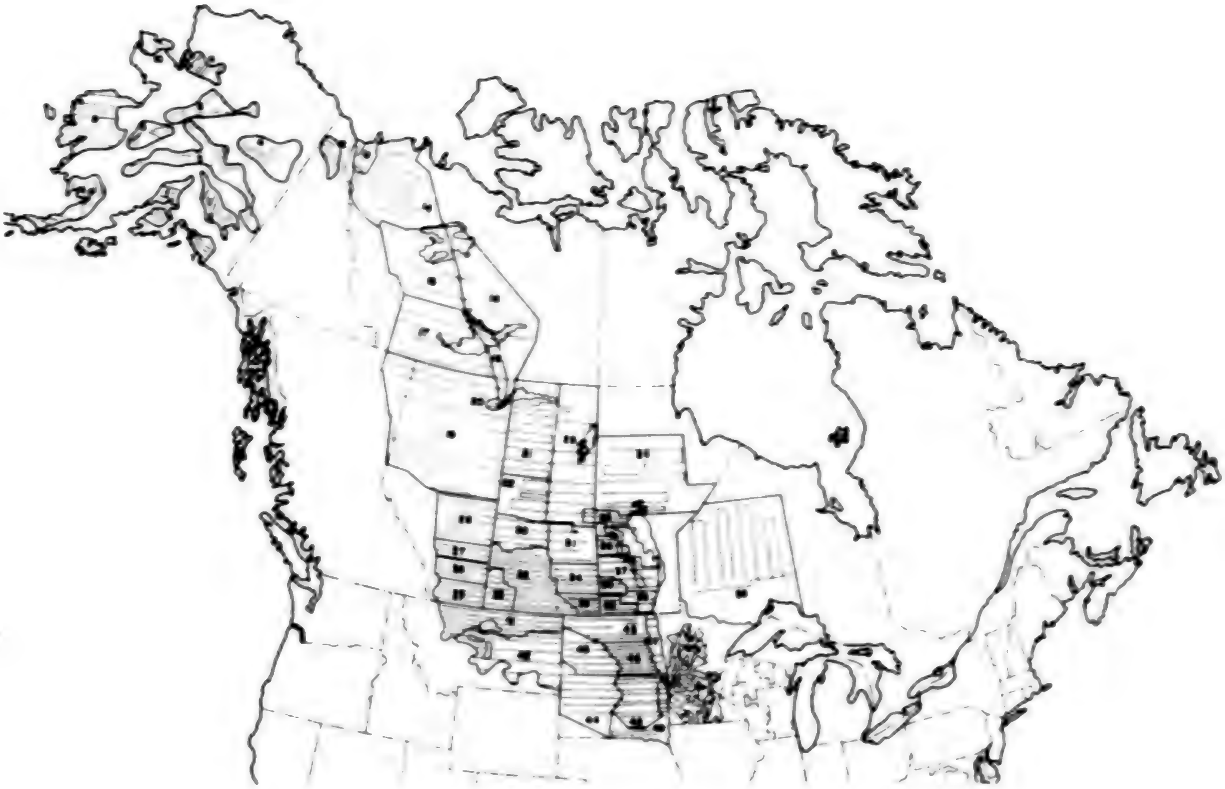

Fig. 1. Transects and strata for principal areas of waterfowl breeding population and production surveys.

Survey participation was similar to prior years and included 47 Service and 124 State personnel covering 30,571 air and 12,486 ground kilometers in conducting the survey.

Results of the survey (Tables A-1, A-2), revealed a 2% decrease in overall duck population figures from 1977 but an increase of 3% above average (1968–77). Mallard (*Anas platyrhynchos*), American wigeon (*A. americana*), and green-winged teal (*A. crecca carolinensis*) indices were up 13%, 44%, and 41%, respectively, as compared with 1977; northern shovelers (*A. clypeata*), redheads (*Aythya americana*), canvasbacks (*A. valisineria*), ruddy ducks (*Oxyura jamaicensis*), and American coots (*Fulica americana*) were below 1977 levels. Pintails (*Anas acuta*) within the States were down 17% from 1977; however, 1.76 million were counted in western Mexico, which brought the flyway total to within -7% of the 1977 population. Goose population levels were all less than they were in 1977 with the exception of the lesser Canada goose (*Branta canadensis parvipes*), which showed an apparent 20% increase over the 1977 levels. Black brant (*Branta bernicla nigricans*) indices were 26% above the 1977 figures.

Central Flyway

Data supplied by Harvey Miller
U.S. Fish and Wildlife Service

Surveys of geese were conducted between 12 and 16 December 1977. There were no reports of weather hampering the surveys. Most areas were surveyed by aircraft and there were no reports of changes from 1977, in either methods or areas covered.

Participation included 62 Service and 192 State personnel. Thirty-one aircraft flew 234 h covering 26,658 km and over 29,354 km were covered by automobiles.

The dabbling duck index was 28% below that of 1977 but only 15% below the 10-year average. The diving duck index was 38% below that of 1977 and 6% lower than the average. All goose counts were above those of 1976 and early 1977; increases ranged from +35% to +97%. Similar increases were evident when the data were compared with the average. The coot index was down by 29% from 1977.

Mississippi Flyway

Data supplied by Kenneth E. Gamble
U.S. Fish and Wildlife Service

The 1978 survey was scheduled for 3–8 January 1978. Surveys in Region 3 and Region 6 States extended from 2 to 10 January 1978. Snow and ice covered much of the area; snow depths ranged up to 51 cm in some areas. In Region 4, surveys extended from 3 to 26 January 1978. Inclement weather and mechanical delays resulted in incomplete surveys in Louisiana, Kentucky, and Tennessee. In southeast Louisiana, the major lakes and bays and the Mississippi River were not surveyed. Redhead concentration areas also were not surveyed. Only 5 of 11 survey routes in Kentucky were completed, and 6 Tennessee routes were not surveyed. Lack of water in rice and soybean fields may have affected survey results in Mississippi.

Participation included 427 personnel from both the Service and various States. Forty-two aircraft and 313 automobiles covered 54,400 km of survey routes.

The dabbling duck index was down 30% as compared with 1977 and was 32% below the 10-year average. Blue-winged teal (*Anas discors*) were down 84% compared with 1977 and were 90% below average. Decreases in other dabbling duck species compared with the 1977 count ranged from -73% mottled duck (*A. fulvigula*) to -9% black duck (*A. rubripes*). The diving duck index was down 56% from 1977 and -67% from average. Goose indices were up 25% compared with 1977 and +59% compared with the 10-year average. The total waterfowl index was 23% less than 1977 and -22% below average.

Atlantic Flyway

Data supplied by Warren Blandin
U.S. Fish and Wildlife Service

Surveys were completed from 3 to 25 January 1978. Delays because of weather were encountered in New Hampshire, New York, and North Carolina and continued severe weather prevented West Virginia personnel from participating in the survey. Throughout much of the flyway, however, weather was seasonable and skies were clear or partly cloudy. Daytime temperatures ranged from -18° to -1°C in the Northeast and up to 8°C in southeastern States north of Florida. Icing occurred in salt marshes, small creeks, and guts as far south as Chesapeake Bay but the larger bays and harbors remained ice free. Inland ponds were frozen as far south as South Carolina. Throughout most of the survey area, food availability was good with the exception of sea lettuce, which was abundant only in deepwater areas in New Jersey's bays.

Participation and effort was similar to prior years with 32 Service and 62 State personnel covering 48,258 km by aircraft, automobile, and boat.

Results of the 1978 survey revealed that total waterfowl indices decreased by 19% compared with 1977 and were 9% below the 10-year average. All major waterfowl groups declined compared with 1977 levels, and only dabblers, geese, and swans exceeded the 1968–77 average; divers were 19% below average. Mallards declined 4% in 1978 but were still 34% above the average. Black ducks were up 3% from 1977 but down 3% from the average. Green-winged teal were down 22% from 1977 and -40% from the average; pintails were down 20% in both categories. Of the divers, canvasbacks were down 17% from 1977 and up 4% from the average. Of particular note was the low number of ring-necked ducks (*Aythya collaris*) encountered in the 1978 survey. Although all species of geese declined from 1977 levels, Canada geese (*Branta canadensis*) remained above the 10-year average. Atlantic brant (*Branta bernicla hrota*) numbers were the lowest since 1973 and starvation was observed among this species in some coastal sections of New Jersey.

Mexico

Data supplied by Arthur Brazda, William W. Larned,
Douglas S. Benning, Rossalius C. Hanson, Kenneth
D. Norman, and Bruce P. Conant
U.S. Fish and Wildlife Service
and
Aradit Castellanos Vera, Gonzalo Medina Gonzalez, and
Sandalio Reyes Osorio
Mexico Departmento de Conservacion

The three major areas surveyed in Mexico during January 1978 were (1) the east coast from the Rio Grande Delta to the Yucatan Peninsula, (2) the interior highlands from Juarez to Oaxaca, and (3) the west coast from Mexicali to Tapachula and the coastal areas of Baja California. The three surveys were initiated between 11 and 13 January 1978 and were completed between 20 and 28 January 1978. A total of 151 h were flown by aircraft covering 33,952 km by six Service and three Mexican Department of Conservation personnel.

East Coast

Habitat conditions were generally good; however, high water continued to be a problem in the Tamesi and Panuco River Delta near Tampico. High water also reduced habitat quality in the Alvarado lagoons. Oil and other pollutants were evident near Tampico and around Coatzacoalcos and Minatitlan. There appeared to be some effort for a cleaner, more orderly process in the recent oil development projects.

Total duck population indices decreased 33% from 1977; dabblers and divers decreased 36 and 28%, respectively, as compared with 1977 levels. Significant decreases from 1977 were noted for green-winged teal (-86%), pintail (-60%), scaup (*Aythya marila* and *A. affinis*; -48%), ring-necked ducks (-40%), wigeon (-25%), gadwall (*Anas strepera*; -21%), and shoveler (-21%). Increases were noted in canvasbacks (+115%), mottled ducks (+72%), and ruddy ducks (+35%). Redheads increased slightly from 1977 while geese increased 278%.

Interior and Lower West Coast

Waterfowl habitat changes were characterized by drier than normal conditions in the northern highlands, near normal in the central highlands, and drier than normal along the lower west coast. No significant changes in land use were noted during the 1978 survey.

In the northern highlands, total ducks decreased 25% from 1977. Increases were noted for shovelers (+264%), gadwall (+206%), and blue-winged teal (+95%). Decreases were found in the wigeon (-59%), pintail (-33%), and green-winged teal (-6%). Geese increased 8% from last year; the white-fronted goose (*Anser albifrons*) increased the most (+42%).

In the central highlands, total ducks increased 78%, dabblers 151%, and divers 142%. Significant increases were found in wigeon (+427%), blue-winged teal (+268%), gadwall (+224%), shoveler (+178%), green-winged teal (+164%), pintail (+73%), scaup (+1,856%), and ring-necked ducks (+138%). Ruddy ducks decreased 83% from 1977. The snow and white-fronted goose populations increased significantly from 1977 with increases of 129 and 603%, respectively.

On the lower west coast, total duck population levels increased by 177% with notable increases in dabblers (+688%) and smaller increases (+109%) in divers. Significant increases from 1977 were in pintail (+2,260%), wigeon (+1,744%), blue-winged teal (+1,040%), gadwall (+705%), shoveler (+516%), and black-bellied tree ducks, *Dendrocygna autumnalis* (+418%). Scaup increased 105% over 1977, whereas ruddy ducks decreased 100% from 1977.

West Coast and Baja California

Little change in habitat was evident since 1977, except for drier conditions near Topolobampo and in the Marismas Nacional. Land clearing and dike construction continued on the mainland as did salt production. The evaporation basins on Baja were beginning to produce some vegetation and attracted a few ducks.

The survey indicated an increase of 68% from 1977 for dabblers, but a decrease of 51% for divers. Total ducks increased 45%. Greatest increases from 1977 were in gadwall (+186%), blue-winged teal (+221%), fulvous tree ducks, *Dendrocygna bicolor* (+100%), shoveler (+83%), wigeon (+66%), and pintail (+62%). Decreases were noted in canvasback (-75%), scaup (-45%), and redhead (-31%). Brant increased to 130,756, a 9% increase from 1977.

Table A-3 summarizes the data from the three survey areas in Mexico.

Breeding Ground Survey

Aerial surveys of waterfowl breeding populations and production were developed in the late 1950's by the U.S. Fish and Wildlife Service to monitor the status of habitat and waterfowl, primarily ducks, over a large portion of their breeding grounds in North America. Annual information in this regard is essential for effective management of this resource. Currently, waterfowl populations and habitat are surveyed over about 20.8 million km^2 of breeding habitat within portions of Alaska, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, the Northwest Territories, the Dakotas, and Minnesota.

In addition to the Service's annual breeding ground survey, a number of States conduct a similar survey. State reports that have been submitted to the Service are incorporated herein.

Beginning in 1973, the Waterfowl Status Report reflects only the current year's data for Service-conducted surveys. Breeding population survey tables also have been changed to reflect adjustment for visibility bias. All reports before 1973 reflect unadjusted figures. The historical production survey data (1955–71) are available in *Special Scientific Report – Wildlife* No. 160 (1972). The procedures followed in conducting the breeding ground surveys are established in the Service's "Standard Operating Procedures for Aerial Waterfowl Breeding Ground Population and Habitat Surveys" (April 1977).

Alaska and the Yukon Territory

Data supplied by James G. King and Bruce P. Conant
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

Weather and habitat conditions were optimal for all species of ducks and geese. Seasonal indicators such as ice breakup pools and weather bureau statistics showed that Alaska had an early spring during 1978. By survey time there was no ice except on the north slope of the Seward Peninsula and the Old Crow Flats in the Yukon. In the interior areas of Alaska, trees were leafed out and grass was growing to a height of 15 cm by survey time. Spring flooding was not observed on the survey area and water levels in lakes and ponds were normal except at a few locations, usually charged by spring floods.

Breeding Populations (Tables B-1, B-1a)

The survey was conducted 17 May through 11 June 1978, requiring 17 days in the air and 91 aircraft h; 5 days were lost to weather. The total waterfowl breeding population estimate was 22% below that of 1977 but represented a 22% increase from average. All species except redhead, canvasback, goldeneye (*Bucephala clangula* and *B. islandica*), and eiders (*Somateria* spp.) had estimates greater than the 10-year average. Dabblers were down 26% compared with 1977 but were 30% above average. In particular, mallards were down 31% from 1977 but were still 32% above average. Wigeon estimates were up by 30% compared with 1977 and were 83% above average. Pintail indices declined 48% compared with 1977 but were still 5% above the average. Diving duck indices as a whole were down 27% as compared with 1977 but represented no change from the average. Independent observations revealed an increase in clutch size among geese and black brant. Whistling swan (*Olor columbianus*) breeding population indices were below 1977 figures and below average.

Northern Alberta, Northeastern British Columbia, and the Northwest Territories

Data supplied by Morton M. Smith, Lonnie D. Schroeder,
K. Duane Norman, and Larry E. Mallard
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

During the last half of May, weather conditions were unsettled, with periods of rain, snow, overcast skies, and associated low temperatures. The season was considered 1 to 2 weeks late, particularly north of Yellowknife. Ice was persistent in northern areas and the survey was delayed at Yellowknife, Norman Wells, and Inuvik because of the lack of open water. On 5 June 1978, the McKenzie River was ice-covered from Arctic Red River north to the mouth. Ice breakup on the river at Inuvik was one of the latest on record. Although it is believed early springs are more favorable than late springs for duck production in the north, it is difficult to quantify this relation. It was obvious in a late season such as this that some species pushed into the first open water. It is suspected this is evidence of an urgent need to begin nesting and is related to the short summer season in the north.

Breeding Populations (Table B-2)

Habitat conditions were improved on the prairies during May 1978 compared with May 1977. In southern Alberta, the parklands were also drier this year than last. It is surmised that some birds moved into northern Alberta because duck numbers increased there during May 1978. In the Northwest Territories duck numbers decreased from the very high levels recorded during 1977.

The duck population recorded in northern Alberta and the Northwest Territories in 1978 remained surprisingly high in view of the improvement in prairie habitat. Total duck numbers in 1978 were 6% below those recorded in 1977 but remained 7% above average. This decline was centered among dabbling ducks which were down 19% from 1977. Mallard numbers were down 12% from 1977 and were 4% below the long-term average. The numerically important wigeon (+13%) and green-winged teal (+58%) increased in 1978 compared with 1977, whereas pintail numbers declined sharply (-53%).

Diving duck numbers remained unchanged from 1977 but the species composition was altered. Scaup, canvasback, and ring-necked ducks decreased, whereas redhead, goldeneye, and bufflehead (*Bucephala albeola*) increased. Among the remaining species, scoters (*Melanitta* spp.) showed a substantial gain (+29%) compared with 1977.

Coots were down 85% in the survey unit in 1978 compared with the record numbers encountered in 1977.

Northern Saskatchewan, Northern Manitoba, and the Saskatchewan River Delta

Data supplied by Arthur R. Brazda, James R. Goldsberry,
Douglas S. Benning, and William W. Larned
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

In general, the survey area experienced a very cold but open winter which resulted in thick ice conditions and a late spring breakup. Spring was 2 to 3 weeks later than normal, and moisture deficiencies continued to be a problem in northern Manitoba and northern Saskatchewan during 1978. Assessing the habitat in all strata of the area, the rating was poor to fair. Water levels in most of the existing boreal forest type potholes and string bogs were low and did not last out the summer. As late as 8 June 1978, snow squalls were evident in much of northern Manitoba on a daily basis and temperatures were below normal. Vegetative development was greatly retarded.

Breeding Populations (Table B-3)

Shortly after the survey was initiated, it was obvious that mallards and teal were in good supply, especially green-winged teal. This was true for all strata except 25, where mallard and teal indices were down from 1977 levels. Total ducks increased 29% over 1977 and were 28% above average. Dabbling ducks increased 36 and

45%, respectively, as compared with 1977 and the 10-year average; notable increases were observed in mallards (+38 and +30%), pintails (+34 and +14%), wigeon (+47 and +15%), and green-winged teal (+103 and +198%). Divers, on the other hand, were up 11% from 1977 but down 3% from the average. Redheads were down (-36 and -45%), as well as canvasbacks (-27 and -33%) and goldeneyes (-37 and -17%). Other species had rather dramatic increases such as ring-necked ducks, which were up 43% from 1977 but were still down 1% from the average. In the miscellaneous category, ruddy ducks increased 62% over 1977 but were still 38% below average. Mergansers (*Mergus* spp.) were up 67% and 101%, respectively. Coots were down 77% from 1977 and 44% from the average. No broods of any species were observed before the conclusion of the survey, further substantiating the late spring in the North.

Summer Weather and Habitat Conditions

Summer weather was poor to marginal during the nesting period; temperatures ranged from cool to cold. Low temperatures persisted throughout July with record lows of 2°C in Prince Albert, Saskatchewan, and 4°C in Thompson, Manitoba, on 21 July 1978. Habitat conditions in northwestern Saskatchewan and the Big River-Meadow Lake region were poor, reflective of the lack of adequate winter snowfall. Fair to good habitat conditions were observed in the remaining regions, especially the Pucatawagan, Thompson, and Gilliam areas. Precipitation levels recorded during 1 May-20 July 1978 revealed increases from the norm for the Thompson and Gilliam areas in Manitoba and the Nippowin, La Ronge, and Prince Albert areas in Saskatchewan. All other reporting stations in the survey area had less than average rainfall during the period.

Production (Table B-3)

In the five northern strata (21-25), the duck brood index was 24% below that of 1977 and 32% less than the average. The late spring had an obvious effect on the chronology of the nesting season. During the 1977 survey, 28% of the identifiable broods were class I, whereas during 1978 that same class was representative of 47% of the 172 broods counted. By the time the surveys were completed, a good number of diver broods were just beginning to emerge, further attesting to the adverse weather conditions during May and July of 1978.

The class II and III average brood size was 5.3, a decrease of 3% from 1977 and 5% from average. In two strata the average brood size dropped below 5.0 ducklings (stratum 23, 4.3; and stratum 25, 4.8). The mallard late-nesting index was 6% above 1977 and 29% above average; that of the green-winged teal was up 174% from 1977 and 391% from average. The late-nesting index for all species of diving ducks was 45% less than that reported in 1977 and 42% below the 10-year average.

Southern Alberta

Data supplied by K. Duane Norman and Larry E. Mallard
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

In southern Alberta, March was milder and drier than normal and temperatures ranged up to 4°C above the seasonal average and precipitation ranged from 8 to 24 mm. Above normal temperature (with no extreme departure from normal) continued into April. Southern Alberta had between 62 and 108 mm of precipitation. With the exception of the Lethbridge and mountain foothill areas, the seasonal snowfall since September was considerably below normal. Snowmelt was complete in the Province by the end of April. May was normal in both temperature and precipitation even though snow fell during the first part of the month. Up to 30 mm of snow fell north of High Level on 22 and 23 May 1978.

Habitat conditions were near normal when we arrived in Calgary on 3 May. None of the large water bodies contained ice, although some ice remained along the banks of the larger rivers and streams and a light snow cover remained in the southwestern foothills at the beginning of the survey. By the time the survey crew had reached Red Deer, the aspen were fully leafed.

The overall May pond index was 18% above 1977 levels, due primarily to huge increases in stratum 29. Quantitatively, the habitat was 32% below the long-term average.

Breeding Populations (Table B-4)

The total duck breeding population index was up 11% from 1977 but down 23% from the average. Puddle duck populations were up 14% from 1977 but were still down (-29%) from the average. Divers decreased 1% from 1977 but remained 14% above average.

Of the puddle ducks, the pintail showed the greatest response (+215%) to improved habitat. Shovelers and wigeon increased 84 and 56%, respectively, compared with 1977, whereas blue-winged teal (-48%), green-winged teal (-32%) and gadwall (-29%) decreased. Mallards decreased 3% from last year and were 42% below average. Compared with the 10-year average, all puddle duck indices decreased.

Of the diving ducks, redheads, canvasbacks, and scaup (the most numerous divers in the survey area) all decreased in numbers from 1977; however, compared with the 10-year average, all divers increased (+14% to +181%) with the exception of the redhead (-10%).

The lone drake index was slightly above the 10-year average.

Summer Weather and Habitat Conditions

During May and June rain fell with varying degrees of intensity within the Province. The southern grasslands received enough rain to maintain May habitat well into July, but most areas north of Medicine Hat received far too little moisture to maintain much more than green grass. Many wetlands were dry for the first time in 10 years; July pond indices were up 5% from 1977 but still 24% below average. Changes from the normal in permanent water were evident as one progressed northward in the region. Temperatures during May, for most locations, were near normal. Above normal temperatures prevailed during June but a return to near normal was experienced during July.

Production (Table B-4)

The duck brood indexes clearly pointed to drying habitat as one progressed northward from the southern grasslands. Increases in the brood index from 1977 were +483% in stratum 29, +157% in stratum 28, +69% in stratum 27, and +28% in stratum 26. The brood index for the entire survey unit was up 69% from 1977 and 22% from the 10-year average. The average brood size was up 15% from 1977 and 2% from average. Coot production increased substantially from 1977, a year in which there was no production at all in strata 27, 28, and 29.

Examination of brood classification indicated that 36% of the broods were class II, 32% were class III, 20% were class I, and 12% were unclassified. As compared with 1977, the number of broods per square kilometer increased during 1978.

During the 1978 survey there was an increased late-nesting index (+73% from 1977 and +17% from average) but a decrease in available habitat; therefore, the late nesting likely produced only a fraction of the potential indicated.

Southern Saskatchewan

Data supplied by Rossalius C. Hanson and James L. Nelson
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

The drought of 1977 in southern Saskatchewan was broken by a winter of considerable snows and a spring of normal or above normal rainfall. Snow depths were such that ponds and potholes were renewed by a wet fall in 1977. The wet fall provided a frost seal that should have resulted in a sizeable runoff. However, a slow thaw along with moderate spring temperatures resulted in a smaller runoff than was anticipated. Much of the moisture was taken up by the soil which was still well below its moisture carrying capacity; therefore, no sheet water was evident during the spring and ponds did not fill to full levels. Most of the water areas, although vastly improved over 1977, were still only one-half to two-thirds full. The May pond index was up 80% from 1977 but only 2% from average.

Haying and dry conditions in 1977 left little, if any, good perimeter habitat for upland nesters. Nesting cover for overwater nesters was improved from 1977 and could be considered adequate. Upland habitat probably was no better than the average of the past several good years.

Breeding Populations (Table B-5)

Total ducks decreased by 16% from 1977 levels and 26% from average. Puddle ducks as a group were down 13% from 1977 and 30% from the 10-year average. Diving ducks also fluctuated by species and were down 29% from last year but up 10% from the average. The increase was due mainly to scaup and goldeneye.

Mallards were down a sizeable 33% from 1977 and 27% from the 10-year average. Pintails were back in the prairies in 1978 and showed a gain of 43%; however, they were down 47% from average. Population estimates for other puddle ducks were mixed; gadwall, wigeon, and green-winged teal were above 1977, whereas blue-winged teal decreased. Shoveler indices remained about the same as 1977. The only puddle duck showing an increase over the average was the gadwall; all others showed decreases of varying amounts.

Diving ducks were also mixed in their standings. Redheads and canvasbacks in 1978 were down compared with 1977 and with the 10-year average. Redheads decreased 19% from 1977 and 9% from the average. Canvasbacks were down 49% from 1977 and 39% from the average. Scaup decreased from 1977 but increased from the average, and ring-necked ducks were up in both categories.

Summer Weather and Habitat Conditions

Although many of the reporting stations recorded above-normal precipitation levels 1 April–10 July 1978, the average figure for southern Saskatchewan as a whole was below the norm. The number of July ponds as compared with the May figure for the same area revealed a dramatic decrease of 59%. The total number of July ponds was up 18% from 1977 (a poor year) but down 21% from the 10-year average. Only 3 years since 1968 had lower ponds numbers. Soil moisture content appeared to have improved which provided fair to good nesting habitat for renesters; however, overwater nesters may have suffered from low water levels. Temperatures in the area were reported as normal.

Production (Table B-5)

Evidence of a poor early nesting effort was revealed by the decreased number of class II and III broods recorded. The total number of broods was down by 10% compared with 1977 and also down 10% compared with the 10-year average.

With the improved water conditions it might have been expected that brood production would also be improved over last year; however, the rapid drying of the ponds took its toll of young ducklings. Also, total duck populations in May of 1978 were down 16% from 1977 and 26% from the average. The average brood size in 1978 was down 11% from 1977 and down 6% from average.

The late-nesting index was down 20% from 1977 and 16% from the 10-year average. All the numerically important species were down from 1977 except wigeon and green-winged teal, which had significant increases. Scaup and gadwall increased over the 10-year average, but all other important species declined.

The late-nesting index this year was probably a good reflection of the declining water conditions.

Southern Manitoba

Data supplied by Douglas S. Benning and William W. Larned
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

Upon returning to southern Manitoba in spring 1978, conditions appeared much improved over those in 1977. Above-normal precipitation occurring during September-April had replenished the permanent and semipermanent basin to the point that quantity-wise May ponds showed an increase of 108% over 1977 and an increase of 41% over the 1968-77 average. The quality of these water areas was substantially reduced as a result of the previous year's extensive de-brushing activities by farmers. Both upland and overwater nesting cover were in relatively poor condition because dry conditions in the early part of the growing season made it possible for the farmers to burn, clear, or otherwise remove vegetation from the perimeters of low wetland basins. The removed cover did not have time to recover by the time of the survey.

Breeding Populations (Table B-6)

The ducks came back to southern Manitoba in relatively good numbers compared with 1977 and notable increases were observed for most species. The 10-year trend in adjusted waterfowl breeding population estimates for this unit are presented in Table B-6.

Comparing the 1978 population estimates with those of 1977, total ducks increased 43%, whereas dabblers increased 47% and divers increased 33%. Of the dabblers, increases were noted for wigeon (+260%), pintail (+248%), gadwall (+207%), green-winged teal (+160%), shoveler (+67%), and mallard (+14%). A 5% decrease was noted for blue-winged teal. Among the divers, increases were noted for goldeneye (+878%), ring-necked ducks (+202%), bufflehead (+87%), and scaup (+78%). Decreases for redhead and canvasback were 67 and 31%, respectively. Among other species, increases were found for ruddy duck (+48%), scoters (+28%), and mergansers (+9%). Coots, responding to improved habitat conditions, increased 57%.

In comparing 1978 population estimates with the 1968-77 averages, total ducks decreased 10%; dabblers decreased 21% and divers increased 35%. Increases were seen among ring-necked duck (+202%), goldeneye (+188%), gadwall (+185%), bufflehead (+119%), scaup (+95%), black duck (+67%), mergansers (+52%), wigeon (+39%), scoters (+12%), and ruddy duck (+2%). Decreases were seen among redhead (-64%), pintail (-47%), blue-winged teal (-46%), canvasback (-38%), shoveler (-29%), mallard (-15%), and green-winged teal (-13%). Coots decreased 3% from average.

Lone Drake Index

The lone drake index for the mallard, pintail, and canvasback was 85.7, which is among the five highest indices since 1956. This was a good indication of an early nesting effort by these species. Ground observations within the unit supported this finding. The mallard lone drake index was among the highest five during the past 23 years, and the pintail index was the highest on record.

Summer Weather and Habitat Conditions

Weather patterns in southern Manitoba were normal for the summer. Light rain showers and thunderstorm activity occurred sporadically. Some areas received above-normal amounts of precipitation during the period, whereas other areas received below-normal amounts. Temperatures were generally below normal through the latter portion of the period. The July pond index was 6% below 1977 and 6% below the previous 10-year average. Stratum 39 was the driest and had a 30% decrease from average. Strata 36 and 40 were also below average while strata 37 and 38 were above average. Comparing the July and May pond indices, there was an overall decrease of 66% with the greatest losses occurring in strata 36 and 40. A normal loss is generally considered to be near 50%.

Habitat conditions in southern Manitoba appeared to be good. Although pond numbers dropped more than normal between May and July, the remaining wetlands had good cover and dense emergent growth. Water levels were low in most ponds, but not so low that very many barren mud flats were exposed at the time of the survey. As nearly all the broods observed on the survey were found on Type IV and V wetlands with good cover, brood survival during the remainder of the season should have been high.

Production (Table B-6)

The total brood index for southern Manitoba was 74% above 1977 and 92% above the previous 10-year average. The 1978 duck brood index in stratum 40 was exceeded only in 1957 and 1958. The distribution of observed broods by age classification was as follows: class I, 108 (41%); class II, 117 (44%); and class III, 39 (15%). Ground observations made by a Service waterfowl research crew working in the Minnedosa, Manitoba, area indicated that the surveys began before broods in that area had developed to flight stage. By the time the survey was completed, most species of ducks in the Minnedosa region were represented by broods that had already fledged. The average brood size of those intact class II and III broods observed from the air was 4.9 ducklings per brood, 12% smaller than 1977's average brood size and 8% smaller than the 1968–77 average.

The coot brood index was 97% above 1977 and 9% above the previous 10-year average.

This year's late-nesting index was as large as the brood count itself. This index was 83% above 1977 and 46% above the previous 10-year average. Dabblers were up 60% from 1977 and 58% from average. Divers were up 817% from 1977 and 57% from average.

Montana

Data supplied by James F. Voelzer and John Tautin
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

Widespread winter snows, followed by above normal spring rains, combined to produce a breeding season characterized by verdant nesting habitat and full water basins. It appeared that all criteria necessary for a successful nesting season were present, except residual nesting cover. Heavy rains and snow in the higher elevations covered the lower two-thirds of the survey area from 15 to 18 May 1978. Hardest hit was the area southeast of Billings where floods on the Bighorn, Little Bighorn, Tongue, and Powder rivers caused evacuation of some towns and outlying areas. The May pond index was up 10% from 1977 but still down 14% from the average.

Breeding Populations (Table B-7)

Of paramount importance in 1978 was the failure of mallards to recover from the low numbers recorded in 1977 as a result of extremely poor nesting conditions. This also pertained, to a lesser degree, to the blue-winged teal. Given much improved habitat conditions in 1978 in Montana, both species should have been present in far greater numbers. The mallard index was still down 15% from that of 1977 and 26% from the average, whereas blue-winged teal remained unchanged from 1977 but still 34% below average. Shovelers, pintail, redhead, and scaup indices were up with rather dramatic increases compared with 1977. Total ducks were up 72% above 1977 and 19% above average. Coots provided an insight to the much improved habitat conditions with respective increases of 408% and 188% over 1977 and the 1968–77 average.

The lone drake index of 75.9 (mallards), 69.8 (pintails), and 73.2 (total) would suggest that survey timing was on the late side of optimum. This finding is supported by the fact that class I brood sightings were becoming rather common by the last day of the survey. However, it should be noted that groups of five or more drakes (same species) were not encountered until 23 May 1978, which was the last day of transect flying.

Summer Weather and Habitat Conditions

During the May waterfowl survey, it was believed that habitat conditions were still recovering from the previous drought. Residual nesting cover was at a minimum but new growth, due to abundant rainfall, was progressing rapidly. Since May, rainfall continued over most of the survey area resulting in abundant growth of upland cover as well as emergent vegetation in breeding ponds. Both were conducive to good brood survival. Survey results indicated a 69% increase in July ponds from 1977, a 25% increase over the long-term average, and a 6% increase since May 1978.

Production (Table B-7)

The 1978 brood index was 201% above 1977, 58% above the long-term average, and the largest since surveys were initiated in 1966. The average brood size also increased by 11% from 1977.

Survey timing appeared to be optimum as indicated by the age class breakdown.

The late-nesting index was 154% above 1977 but 29% below the average. The decline from average appears to be the direct result of a successful first nesting attempt.

North and South Dakota

Data supplied by Edgar L. Ferguson and Michael Phillips
U.S. Fish and Wildlife Service

Spring Weather and Habitat Conditions

In North Dakota, above-average precipitation occurred principally in the fall; however, winter snows and spring rains did not materialize to the extent necessary to break the drought. Total ponds improved in relation to 1977 but still showed a decrease in the long-term average. Habitat conditions in North Dakota were improved over 1977 but in some areas drought-like conditions prevailed. In South Dakota, a similar pattern of above-average rainfall occurred in the fall and winter months in 1977. Excellent rainfall in April resulted in the pond counts in South Dakota showing increases in every stratum between 1977 and 1978.

Breeding Populations (Tables B-8 and B-9)

In North Dakota, dabblers increased 130% from 1977 but remained unchanged compared with the 10-year average. Mallards increased 35% from 1977 but were still 10% below average. Other dabblers species fared similarly in North Dakota but pintails increased 546% over 1977 levels and 23% above average. Other notable increases were observed in shovelers (+228% and +21%). Total divers in North Dakota increased 327% over 1977 levels and were up 48% from average. This was due to huge increases in redheads (up 439% from 1977 and 40% above average) and scaup (up 441% from 1977 and 120% above average). Coots also increased dramatically from 1977 (+313%) and the 10-year average (+30%).

In South Dakota most species of waterfowl showed increases from 1977. This was the first year in the last 10 years that the total waterfowl breeding population indexes were higher in South Dakota than in North Dakota. Mallards increased 101% from 1977 and 27% from the average. Similar gains were noted in redheads, which increased 1,085% in 1978. The blue-winged teal index of 1.28 million was higher than any other blue-winged teal index recorded in the past 10 years. Total ducks in South Dakota increased 284% from 1977 and 95% from the long-term average. The implications of the increases in South Dakota were that the favorable response by all waterfowl was the result of improved numbers of wetland basins. The previous years were very dry and probably resulted in a buildup of nutrients and consequent bloom in invertebrates during the 1978 breeding season. It is theorized that this is one reason for the response of waterfowl to South Dakota breeding areas.

Summer Weather and Habitat Conditions

Habitat in both Dakotas was characterized by good moisture conditions and resultant improved habitat conditions. The area of improved habitat conditions extended from a horizontal line across South Dakota from Aberdeen northward into North Dakota to about Woodworth, North Dakota. Moisture conditions caused the resulting waterfowl habitat to improve markedly in this area. Proceeding from the Coteau eastward from both North and South Dakota there was a definite decline in waterfowl habitat quality. This culminated in stratum 47 in which no broods were observed for the past 2 years. This degraded habitat is unlikely to improve regardless of the amount of rainfall it receives because of drainage. During May, observed ponds in North Dakota were up 22% over 1977 but still showed a decrease of 26% from the average. In essence, North Dakota had not recovered from the drought of 1977. South Dakota habitat situations were greatly improved over the past 10 years. Local residents reported seeing more ducks than they have ever seen and moisture conditions greatly improved. The total ponds in South Dakota were 55% above 1977 and 17% above average.

Production (Tables B-8 and B-9)

In North Dakota, the duck brood index increased 26% over that of 1977. This was due to general increases in strata 43 and 46. Average brood size increased from 4.4 in 1977 to 5.5 in 1978.

In South Dakota, the duck brood index increased 118% over 1977. This also represented a 50% increase from the long-term average.

In North Dakota the mallard late-nesting index increased 24% from 1977 but still remained 56% below the long-term average. In South Dakota, the late-nesting index for mallards increased from 1977 but remained 81% below average. In South Dakota, all species except black duck had an increase in this index compared with 1977.

Minnesota

Data supplied by Robert L. Jessen
Minnesota Department of Natural Resources

Spring Weather and Habitat Conditions

Spring in Minnesota came late and temperatures remained low well into May. On 3 May 1978 nearly all lakes from Lake of the Woods to Lake Superior were ice-covered. Larger lakes within an area from Upper Red Lake to Mille Lacs Lake to Lake Superior were partially ice-covered.

High winds prevented the State survey from beginning as planned and frequently hampered flights throughout the survey period of 10-23 May 1978. Fall rains and spring runoff restored many wetlands from the drought conditions of the previous 2 years. Estimated ponds increased from 55,000 in 1977 to 130,000 in 1978 (up 136%). In addition, temporary sheet water was notably evident, especially in southwestern Minnesota and west of Fergus Falls.

In general, habitat conditions were judged very good. Diving ducks and coots were noted nesting on type III and IV wetlands throughout the survey coverage.

Breeding Populations (Tables B-10, B-11, and B-12)

Estimates of the breeding population were made on the basis of four survey strata. Three of those strata are based on lake basins of 4 ha or more according to the following criteria of density: stratum I has 21 or more basins per township, stratum II has 11 to 20 basins per township, and stratum III has 2 to 10 basins per township. Stratum IV encompassed an irregular basin density in the northwestern portion of the State. Excluded from the survey coverage were those areas having less than two lake basins per township, the metropolitan area surrounding the Twin Cities, and the infertile northeastern portion of the State.

Estimates expanded for coverage by strata, but not for visibility, indicated an index of 142,341 ducks, 33,823 coots, and 7,666 Canada geese (Table B-10).

Visibility corrections derived from eight air-ground routes provided further expansion for statewide populations of major species. In 1978 the total estimated duck breeding population was 615,000 birds of which 189,000 were mallards, 256,000 were blue-winged teal, and 12,000 were ring-necked ducks (Table B-11). Extremely low visibility of wood ducks (*Aix sponsa*) prevented their estimation from aerial surveys. These estimates indicated a slight overall increase in ducks (6%), a modest decline in mallards (13%), and a modest increase in blue-winged teal (17%). Both mallards and blue-winged teal were at population levels above long-term historical estimates.

An aerial flight in west central Minnesota on 8 June 1978 was made to view nesting progress as evidenced by occurrence of drake mallards with hens and other ducks. A low proportion of drakes with hens (3%) suggested that the nesting season was progressing well with fewer than usual nest losses (Table B-12).

In summary, with minor species exceptions, Minnesota's duck breeding population was above the average and good water and pond conditions existed in the spring of 1978. Production of waterfowl was expected to be above average.

Washington

Data supplied by Richard C. Parker
Washington Department of Game

Weather and Habitat Conditions

Average amounts of precipitation combined with moderate temperatures during the 1977-78 winter increased the number of water areas available for brooding ducks. The number of water areas on five transects counted in May was 201 (up 56% from 1977 and down 7% from the average). On three transects, the number of water areas available in July totaled 75 (up 142% from 1977 and 3% above average). There appeared to be an adequate number of suitable brood ponds available for the 1978 waterfowl production year.

Breeding Population (Table B-13)

The duck breeding population index for 1978 totaled 142,360 (down 24% from 1977 and down 20% from the 1968-77 average). May counts showed that available water areas were at or near normal levels. During the drought of 1977, farmers over-irrigated in anticipation of a reduction in allocations later in the growing season. This resulted in an abundance of surface runoff water. The dabbler breeding index for Yakima was 20,000 during 1977, which included 10,430 mallards. The mallard breeding index for 1978 was 12,770 (up 22% from 1977). Blue-winged and cinnamon teal (*Anas cyanoptera*) totaled 8,000 during 1977 and 2,900 during 1978 (down 64%). Other dabblers in the Yakima area were up from 1977. The reason for the dramatic decline in blue-winged and cinnamon teal is unknown and was true for all Washington areas. However, the 1977 drought forced waterfowl away from eastern Washington, and teal may simply have not returned in 1978.

Dabbling ducks present on Washington production areas totaled 101,550 (down 28% from 1977 and 25% from the 1968-77 average). Mallards totaled 42,710 (down 9% from 1977 and down 22% from the 10-year average). The blue-winged and cinnamon teal index was 22,800 (down 58% from 1977 and 37% from the 10-year average). The pintail index was 7,330 (up 86% from 1977 and 4% from average).

The diving duck breeding index was 39,510 (down 11% from 1977 and 6% from the 10-year average). Redheads totaled 10,270 (down 44% from 1977 and 30% below average). Canvasbacks, scaup, and goldeneye were down from both 1977 and the average. The ring-necked duck index was 4,380 (up 44% from 1977 and the 10-year average). Ruddy ducks were up 6% in 1978.

Production Index

Ducks responded to an increase in available water areas, with a production index of 330,700, which was down 10% from 1977 and 25% from the 10-year average (Table B-14). This was 5 percentage points below the duck breeding index, comparing 1978 with the 10-year average. Available breeders did not produce up to expectations during 1978.

The dabbler index was 255,900 (down 15% from 1977 and 28% below average). Mallards totaled 119,300 (up 9% from 1977 but down 16% from the 10-year average). Blue-winged and cinnamon teal were down 52% from 1977 and 45% from the average. Wigeon were down 14% from 1977 and 48% from the 10-year average. Other dabblers produced better than in 1977, but were still below the average. Wood ducks were down 25% from 1977 but 25% above average. The diving duck index was 69,800 (up 6% from 1977 but 16% below average). Redheads totaled 20,600 (down 24% from 1977 and 33% from the 10-year average). Canvasbacks were also down 56 and 43%, respectively. Scaup totaled 12,100 (up 21% from 1977 but down 19% from the average). Ring-necked ducks, buffleheads, and ruddy ducks all showed increases over 1977 and the 10-year average.

The Canada goose production index was 14,500, which reflected no change from 1977, whereas goose production in north central Washington and Columbia Basin areas was up from 1977. Areas along the Yakima River drainage produced well in 1978. However, coyote predation on Columbia River islands on Atomic Energy Commission land continue to depress production there. Other Columbia River areas produced well, except John Day Pool where 25% of the breeding geese nesting on islands died of poisoning by heptachlor.

The 1978 duck production was well below that of 1977, which was also down from recent years, and it was well below the 10-year average. Ducks did not respond to an increase in available water areas with an expected increase in production. Mallards were down from the average, but not as much as other dabblers. Most of the dabbler decline was the result of a dramatic decline in blue-winged and cinnamon teal. Evidently, teal shifted to other locations during the 1977 drought and did not return during 1978. Redheads did not respond to improved water conditions with an increase in production; the same was true for canvasbacks. It would seem that the current bag and possession limits on these species are too liberal. Canada geese continue to do well in Washington.

California

Data supplied by J. LeDonne, Frank Kozlick, B. Deuel, and
D. Hinz
California Department of Fish and Game

Weather and Habitat Conditions

Habitat conditions in northeastern California were much improved this year over 1977, which was the State's driest year on record. Conditions were fair and most of the normally stable water impoundments and marshes were once again holding water; however, some permanent and most of the temporary waterfowl habitat that was available in a good water year still lacked water and showed the effects from the drought years of 1976 and 1977. With the high land values, native pasture and meadows that produced waterfowl were being replaced with cereal crops and alfalfa. Also of great importance to the resource was the change in irrigation methods from a flood-type to overhead sprinkler systems. This method saves and uses water more efficiently; however, it allowed more marginal land to be brought into agriculture productions, which further reduced wetland habitat.

The Central Valley received above normal amounts of rainfall and this, together with the runoff from the record snowpack in the Sierra Nevada Mountains, filled the State's reservoirs and caused flooding in many valley areas. Similar to 1969 floodwater poured into the Tulare Basin areas inundating these lands. Thousands of ducks and coots remained to nest in these areas that were normally dry farmland and not usually covered by the survey. This flooded area had water and weather conditions ideal for botulism, which predictably started in June. As a result, much of the duck production was nullified with disease losses. The Central Valley is mostly composed of artificial and regulated water impoundments such as rice fields, grasslands, and pastures. In 1978 with good water conditions, birds scattered out to nest in a variety of other temporary habitat. Rice field preparation was 2 weeks to a month behind schedule, due mainly to a wet spring, which kept equipment out of the fields. However, rice crop production increased to 1,000,350 ha, which represented a 27% increase from 1977.

Farm ponds, stock tanks, and other small wetland areas scattered over the entire State and not covered by this survey, were once again producing some ducks after 2 dry years. This would account for the slight decrease in breeding pairs and the fall population of ducks shown for the survey transects.

Breeding Populations and Production Indices (Tables B-15 to B-21)

The breeding ground survey for 1978 was conducted in essentially the same manner as in previous years, consisting of complete aerial coverage of the "Great Basin" section in northeastern California and aerial transects in the Sacramento Valley, San Joaquin Valley, and Bay Area. On the Klamath Basin National Wildlife Refuge, ground counts were made by refuge personnel and supplemented with aerial survey work. The survey flights in the Central Valley were conducted 17-19 May, whereas northeastern California was surveyed from 5 to 9 June 1978.

The accumulated data indicated nesting pairs of Canada geese increased 20% but there was no change in the fall population index. Total ducks showed a decrease of 7% in nesting pairs, and the fall population index of coots was down 64%.

Colorado

Data supplied by Michael R. Szymczak and Steven F. Steinert
Colorado Division of Wildlife

Weather and Habitat Conditions

In general, water conditions for duck production were much better in 1978 than in 1977. Conditions in the San Luis Valley continued to decline because of a combination of dry weather and an increase in circular sprinkling from wells as opposed to flood irrigation. Water conditions in North Park were below average, as a cool, wet spring retarded the initiation of the irrigation season. However, conditions in the South Platte and Cache la Poudre Valleys were excellent; all ponds and ditches were full of water. In the Yampa Valley a heavy snowpack resulted in some temporary ponds retaining water into the nesting season, but the permanent ponds that were dependent upon irrigation water were low because of the delay in irrigation.

Conditions for Canada goose production were excellent along the rivers in northwest Colorado. Normal water flows resulted in the average number of usable islands throughout the nesting season. High water levels were not experienced until after the peak of hatch. In north central Colorado reservoir water levels were higher than in 1977.

However, a 67-cm snowfall near the peak of hatch definitely reduced production from expected estimates.

Breeding Populations and Production
(Tables B-22 to B-30)

The estimated number of duck breeding pairs were very similar to 1976 levels and 22% above the long-term average (Table B-22). The number of pairs in the San Luis Valley remained stable in spite of a valley-wide decline in habitat conditions. A decrease in the North Park duck population was more than compensated for by large increases in the South Platte and Cache la Poudre Valleys. Mallards made up 29% of the breeding pair population – an increase over the 1976 level, but still far below the long-term average (Table B-23). The mallards were followed in descending order of abundance by gadwall, green-winged, blue-winged, and cinnamon teal (each composing more than 10% of the population).

The post-nesting season population of Canada geese on trend areas in northwestern Colorado was projected to be 1,710 birds in 1978 (Table B-24) and was down 9% from 1977 but 7% above the 1967–77 average (Table B-25). Gosling production (773) was 13% above the 1977 level and 40% above the 1966–77 average (Table B-26).

Results of the 1978 production survey in north central Colorado are presented by individual area (Table B-27). Gosling production in north central Colorado was down 20% from 1977 and 21% from the 1969–77 average (Table B-28). Production declined in all trend areas except Boulder and Loveland. The number of adults observed was up 20% from 1977 levels but still down 6% from the 1969–77 average (Table B-28a).

The aerial survey of breeding Canada geese in west central Colorado was flown on 20 April 1978. The results are presented in Table B-29 and compared with 1977 figures in Table B-30. The 1977 survey was conducted on 9 May. In spite of the variation in survey dates between years, the presence of more single geese during the earlier 1978 survey probably indicated an increase in the number of active breeding pairs.

Nebraska

Data supplied by John T. Sweet
Nebraska Game and Parks Commission

Weather and Habitat Conditions

In Nebraska, spring temperatures were generally low until mid-May, but periods of above normal temperatures occurred during June and July. Drought conditions were relieved in the northern and northeastern Sandhills and Rainbasin production areas by near average level rainfall. The central and southwestern areas of the Sandhills showed some improvement but still remained relatively dry. Many water areas were drying rapidly by the first part of July. Sandhills May water index was 38% above that of 1977, and total water areas increased by 10% from 1977 in the July survey.

Breeding Populations and Production
(Tables B-31 and B-32)

The 1978 calculated breeding duck index for the Sandhills production area was 126,006 birds, which represented an overall increase of 45% compared with 1976 (last year of aerial surveys) population indices. Of the 10 species identified during the counts, only the ruddy duck (-97%) failed to increase over 1976 population levels.

Ground route transects were driven through the Sandhills production area during 11–14 July 1978 to establish a production index. A total of 41 broods with 204 ducklings were observed on transect. The average brood size of 4.98 (Table B-32), all species combined, was 1.47 ducklings less than that of 1977. The number of broods sighted on transect was 273% above 1977, whereas the number of ducklings observed was 187% above 1977 levels.

Wisconsin

Data supplied by Dave Evenson, Bruce Moss, and Jerry Bartlet
Wisconsin Department of Natural Resources

Habitat Conditions

Data gathered from the aerial survey on wetland abundance and distribution indicated a 114% increase of wetlands per 2.95 km² (Table B-33) from 1977. Wetland types IV, V, streams, and ditches were the areas most used (71% of all wetland types) by Wisconsin's breeding waterfowl (Table B-34).

Breeding Populations (Table B-35)

Total breeding ducks in Wisconsin increased 4% from 1977 to 1978; mallards increased 34% and blue-winged teal decreased 25%. Total ducks increased 22% in the southeast-central region, increased 4% in the northern low region, and decreased 14% in the northern high region.

Although mallard populations experienced a statewide increase of 34% compared with 1977, it should be emphasized that 1977 had the lowest population of mallards since the survey began in 1973. The current mallard population in Wisconsin was still 7% below the 5-year mean for 1973–77. Statewide populations of blue-winged teal declined for the third consecutive year. The current population of blue-winged teal was 43% below the 5-year mean for 1973–77.

Regional population trends for breeding mallards increased slightly in all regions. Blue-winged teal populations increased slightly in the southeast central region and declined in the two northern regions.

Waterfowl Harvest Surveys

Data supplied by Samuel M. Carney, Michael F. Sorensen, and
Elwood M. Martin
U.S. Fish and Wildlife Service

This report provides estimates of waterfowl hunting activity and harvest during the 1977 season and compares them with estimates for the 1976 season. Estimates for both years were derived from information obtained from three sources: (1) the Postal Service's report of duck stamp sales, (2) the U.S. Fish and Wildlife Service's Questionnaire Survey of Waterfowl Hunters, and (3) the Service's Waterfowl Parts Collection Survey.

Procedures

An explanation of procedures employed in estimating hunter harvest and activity may be found in *Special Scientific Report – Wildlife* No. 138. Similar sample selection, stratification procedures, and computations subsequently have been followed. Major adjustments to data include those for activity by hunters less than 16 years old, who are not surveyed because they are not required to purchase duck stamps (Table C-1), and those used to compensate for memory and prestige biases (Table C-2).

Administrative Reports

Data in this report are based on final duck stamp sales information. In the Administrative Report "Waterfowl Harvest and Hunter Activity in the United States During the 1977 Hunting Season" (9 June 1978), preliminary estimates based on duck stamp sales through the third quarter of the July 1977-June 1978 duck-stamp-sales year were made available for the annual waterfowl regulations meetings in early August 1978. Age and sex composition are not included herein, but were presented in the Administrative Report "Age and Sex Composition of Ducks and Geese Harvested in the 1977 Hunting Season in Comparison with Prior Years" (12 June 1978).

Results

Bias-adjusted estimates of the total U.S. harvest of ducks (by species), coots, and unretrieved kill are presented in Table C-3. Similar estimates relating to geese are in Table C-4. Detailed State-level estimates of the duck, goose, and coot harvest; migratory waterfowl hunting-stamp sales; and hunter activity and success may be found in Tables C-5 through C-9. These results include hunter activity and harvest during regular and special seasons combined. For States having a September teal season, the harvest and species composition during that season is also shown separately in Table C-10. Estimates are presented as derived to assure agreement between totals and their component parts. This does not imply precision to the last hunter, duck, or day.

The following is a resume of 1977 hunter activity and harvest success by flyway, showing degree of change from 1976.

Atlantic Flyway. – Duck stamp sales totaled 434,557 (no change), and 1,874,720 ducks (-10%), 53,591 coots (-57%), and 493,076 geese (+30%) were harvested during 2,744,893 hunter-days (-5%). Those persons buying duck stamps for hunting averaged 6.29 days afield (-4%) and retrieved an average of 4.36 ducks (-10%) and 1.16 geese (+31%) each. Estimates for the Atlantic Flyway are recorded in Table C-5.

Mississippi Flyway. – Duck stamp sales totaled 872,064 (+2%), and 5,986,795 ducks (-1%), 284,446 coots (-52%), and 506,253 geese (+9%) were harvested during 6,677,686 hunter-days (+5%). Those persons buying duck stamps for hunting averaged 7.31 days afield (+2%) and retrieved an average of 6.70 ducks (-4%) and 0.57 goose (+7%) each. Estimates for the Mississippi Flyway are recorded in Table C-6.

Central Flyway. – Duck stamp sales totaled 423,871 (-1%) and 2,412,683 ducks (-13%), 40,859 coots (-33%), and 508,555 geese (+10%) were harvested during 2,919,165 hunter-days (-3%). Those persons buying duck stamps for hunting averaged 6.51 days afield (-1%) and retrieved an average of 5.51 ducks (-11%) and 1.18 geese (+12%) each. Estimates for the Central Flyway are recorded in Table C-7.

Pacific Flyway. – Duck stamp sales totaled 383,195 (-1%), and 3,083,378 ducks (-26%), 112,883 coots (-21%), and 314,875 geese (-15%) were harvested during 2,821,769 hunter-days (-4%). Those persons buying duck stamps for hunting averaged 7.03 days afield (-1%) and retrieved an average of 7.95 ducks (-24%) and 0.82 goose (-13%) each. Estimates for the Pacific Flyway are recorded in Table C-8.

Alaska. – Duck stamp sales totaled 19,253 (+4%), and 108,994 ducks (-1%), 438 coots (-60%), and 17,052 geese (+22%) were harvested during 86,042 hunter-days (-4%). Those persons buying duck stamps for hunting averaged 4.18 days afield (-7%) and retrieved an average of 5.49 ducks (-4%) and 0.86 goose (+19%) each. Estimates for Alaska are recorded in Table C-9.

United States. – Duck stamp sales totaled 2,132,940 (no change) and 13,466,570 ducks (-11%), 492,217 coots (-47%), and 1,839,811 geese (+9%) were harvested during 15,249,555 hunter-days (no change). Those persons buying duck stamps for hunting averaged 6.87 days afield (no change) and retrieved an average of 6.21 ducks (-11%) and 0.86 goose (+9%) each. Estimates for the United States are recorded in Table C-9.

APPENDIX

APPENDIX A. WATERFOWL SURVEY TABLES

Table A-1. Winter Survey, January 1978 -- Waterfowl by species and flyway.

Species	Pacific	Central	Mississippi	Atlantic	Total
Dabblers					
Mallard[a]	1,483,490	2,166,980	2,604,900	267,568	6,522,938
Black duck			91,400	269,535	360,935
Mottled duck		38,650	33,000	100	71,750
Gadwall	28,346	101,200	418,300	21,544	569,390
Wigeon	954,316	121,410	126,700	69,686	1,272,112
Green-winged teal	252,721	479,206	398,500	40,098	1,170,525
Blue-winged teal[b]	1,620	2,450	14,700	19,404	38,174
Shoveler	627,998	66,942	118,200	5,037	818,177
Pintail	2,997,128	541,590	491,400	85,607	4,115,725
Subtotal	6,345,619	3,518,428	4,297,100	778,579	14,939,726
Divers					
Redhead	14,728	257,231	16,100	147,649	435,708
Canvasback	78,313	36,900	38,800	117,011	271,024
Scaup	184,713	53,130	169,000	314,135	720,978
Ring-necked duck	6,749	6,790	60,700	31,182	105,421
Goldeneye	36,718	9,880	54,600	40,511	141,709
Bufflehead	36,080	5,407	5,500	71,924	118,911
Ruddy duck	70,648	5,230	6,600	45,537	128,015
Subtotal	427,949	374,568	351,300	767,949	1,921,766
Miscellaneous					
Eider and Scoter	105,952			142,967	248,919
Oldsquaw	258		3,200	18,268	21,726
Merganser	34,666	124,315	29,900	64,059	252,940
Subtotal	140,876	124,315	33,100	225,294	523,585
Unidentified	34,371	19,517	38,100	9,561	101,549
Total Ducks	6,948,815	4,036,828	4,719,600	1,781,383	17,486,626
Geese					
Blue and Snow goose	236,081	1,204,302	794,100	75,161	2,309,644
Ross goose[c]	(27,430)				(27,430)
White-fronted goose	112,522	140,605	53,100		306,227
Canada goose	270,630	582,611	1,067,100	833,232	2,753,573
Cackling goose	39,421				39,421
Total Geese	658,654	1,927,518	1,914,300	908,393	5,408,865

Table A-1. (Continued).

Species	Pacific	Central	Mississippi	Atlantic	Total
Brant					
Black brant	19,770				19,770
American brant				46,340	46,340
Total brant	19,770			46,340	66,110
Swans					
Mute swan	5			2,142	2,147
Whistling swan	45,597	11		70,248	115,856
Trumpeter swan	1,056	174			1,230
Total Swans	46,658	185	TR	72,390	119,233
Coots					
American coot	286,117	196,800	897,200	296,641	1,676,758
Grand Total	7,960,014	6,161,331	7,531,100	3,105,147	24,757,592

[a] Includes Mexican duck.
[b] Includes Cinnamon teal.
[c] Included with Blue/Snow geese totals.
TR=trace (fewer than 50 birds counted).

Table A-2. Winter Survey, January 1978 -- Waterfowl by State and Flyway.

State	Ducks	Geese	Brant	Swans	Coots	Total
Pacific Flyway						
Washington	723,008	102,108	18,100	2,330	23,664	869,210
Oregon	402,353	98,592	1,110	8,953	13,826	524,834
Idaho	597,560	35,641		836	10,106	644,143
Montana	32,527	1,454		275	82	34,338
Wyoming	4,007	854		56		4,917
California	5,074,825	398,170	560	28,960	220,335	5,722,850
Nevada	25,438	8,265		432	11,491	45,626
Utah	58,352	9,085		4,816	4,508	76,761
Colorado	14,239	2,420				16,659
Arizona	3,513	1,654			1,850	7,017
New Mexico	12,993	411			255	13,659
Flyway Total	6,948,815	658,654	19,770	46,658	286,117	7,960,014
Central Flyway						
Montana	24,987	606				25,593
North Dakota	795	5				800
South Dakota	54,808	66,842		185		121,835
Wyoming	118,700	11,000				129,700
Nebraska	314,728	32,600				347,328
Colorado	273,810	155,100				428,910
Kansas	1,024,715	119,050				1,143,765
New Mexico	117,455	49,715			3,400	170,570
Oklahoma	282,530	104,600			4,700	391,830
Texas	1,824,300	1,388,000			188,700	3,401,000
Flyway Total[a]	4,036,828	1,927,518		185	196,800	6,161,331
Mississippi Flyway						
Minnesota	25,300	23,800				49,100
Wisconsin	24,000	2,600			200	26,800
Michigan	43,100	26,500			100	69,700
Iowa	144,200	82,700				226,900
Illinois	288,000	489,600			100	777,700
Indiana	47,600	23,800				71,400
Ohio	25,700	28,200			100	54,000
Missouri	516,100	549,000			1,500	1,066,600
Kentucky[b]	48,800	75,200				124,000
Tennessee[b]	392,500	90,300		TR	6,200	489,000
Arkansas	691,600	14,100			1,300	707,000
Louisiana[b]	2,070,500	471,100			839,500	3,381,100
Mississippi	265,000	4,400			5,200	274,600
Alabama	137,200	33,000			43,000	213,200
Flyway Total[b]	4,719,600	1,914,300		TR	897,200	7,531,100

Table A-2. (Continued).

State	Ducks	Geese	Brant	Swans	Coots	Total
Atlantic Flyway						
Maine	63,856	877				64,733
New Hampshire	278	110				388
Vermont	3,586					3,586
Massachusetts	143,797	10,437	3,845	461		158,540
Connecticut	21,737	2,809	135	534		25,215
Rhode Island	32,160	1,323	136	263		33,882
New York	114,955	14,498	8,936	554	295	139,238
Pennsylvania	36,398	65,398		1,576	106	103,478
New Jersey	146,315	15,375	14,600	1,627	100	178,017
West Virginia						
Maryland	198,300	519,000	1,600	35,000		753,900
Delaware	58,509	89,229	2,278	1,715		151,731
Virginia	155,092	95,337	10,810	6,860	14,440	282,539
North Carolina	336,800	85,800	4,000	23,800	49,700	500,100
South Carolina	197,300	6,500			106,200	310,000
Georgia	18,300	500			15,400	34,200
Florida	254,000	1,200			110,400	365,600
Flyway Total	1,781,383	908,393	46,340	72,390	296,641	3,105,147
U.S. Total	17,486,626	5,408,865	66,110	119,233	1,576,758	24,757,592

[a] Figures include mid December Goose Survey (12-16 December 1977)

[b] Survey not completed in portion of state

TR=trace (fewer than 50 birds counted).

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Table A-3. Winter Waterfowl Surveys in Mexico 1978 vs. 1977.

Species	East Coast 1978	East Coast 1977	East Coast % change	Central & Interior Highlands 1978	Central & Interior Highlands 1977	Central & Interior Highlands % change[a]	West Coast 1978	West Coast 1977	West Coast % change
Dabblers									
Mallard	5	340	- 98	3,530	3,985	- 21		172	
Mexican duck				22,470	7,365	+161	10		+100
Mottled duck	3,510	2,030	+ 72						
Gadwall	30,500	38,675	- 21	29,608	8,710	+230	20,171	7,065	+186
Wigeon	119,625	159,415	- 25	76,490	17,030	+344	82,180	49,402	+ 66
Green-winged Teal	11,600	88,675	- 86	176,345	71,505	+124	204,215	189,031	+ 8
Blue-winged & Cinnimon Teal	288,145	326,560	- 11	79,800	12,470	+524	265,365	81,926	+224
Shoveler	58,520	74,930	- 21	127,190	39,235	+222	167,432	91,597	+ 83
Pintail	150,385	381,520	- 60	183,435	101,035	+ 65	881,430	544,538	+ 62
Fulvous tree duck	35,725	24,760	+ 44	75		+100	21,720	7,233	+200
Black-bellied tree duck				2,875	420	+584	8,110	10,352	- 27
Subtotal	698,015	1,096,905	- 36	701,818	261,755	+152	1,650,633	981,316	+ 68
Divers									
Redhead	268,550	266,120	+ 1	690	795	- 13	22,411	32,489	- 31
Canvasback	9,405	4,365	+115	8,120	5,170	+ 54	512	2,084	- 75
Scaup	226,215	438,175	- 48	47,850	19,385	+147	60,796	110,568	- 45
Ring-necked duck	22,215	37,025	- 40	16,065	6,775	+136	872		+100
Goldeneye							816	77	+960
Bufflehead	190	190	NC	75	75	NC	2,097	5,153	- 59
Ruddy duck	17,615	13,005	+ 35	150	1,085	- 86	9,875	46,629	- 79
Subtotal	544,190	758,880	- 28	72,950	33,285	+119	97,379	197,000	- 51
Miscellaneous									
Scoters							7,486	18,529	- 60
Mergansers	940	5,635	- 83	220	305	- 28	7,010	21,064	- 67
Unidentified				17,410	139,460	- 88			
Subtotal	940	5,635	- 83	17,630	139,765	- 88	14,496	39,593	- 63
Total ducks	1,243,145	1,861,420	- 33	792,398	434,805	+ 73	1,762,508	1,217,909	+ 45

Table A-3 (Continued).

	East Coast			Central & Interior Highlands			West Coast		
Species	1978	1977	% Change	1978	1977	% Change[a]	1978	1977	% Change
Geese									
Canada	4,200	1,530	+174		10	-100			
Brant							143,117	130,756	+ 9
White-front	9,550	8,420	+ 13	34,450	14,940	+ 89	2,137	1,068	+100
Snow/Blue	25,615	465		56,795	51,395	+ 4	600	4,151	- 86
Total Geese	39,365	10,415	+278	91,245	66,345	+ 24	145,854	135,975	+ 7
Coot	629,840	675,605	- 6	94,505	55,090	+ 62	131,645	106,872	+ 23

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*Tree ducks combined on East Coast.

[a] Percent change in comparable coverage.

APPENDIX B. WATERFOWL BREEDING GROUND SURVEY TABLES

TABLE B-1. Alaska--1978 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	19 -19 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS		Not applicable			JULY PONDS		Not applicable		
					DUCK BROOD INDEX		Not applicable		
					AVG. BROOD SIZE		Not applicable		
		BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES		
DUCKS:									
DABBLERS:									
MALLARD	269.7	-31	205.3	+32			Not applicable		
BLACK DUCK	0.0	n.c.	0.0	n.c.					
GADWALL	3.3	+1550	1.3	+154					
AMERICAN WIGEON	893.2	+30	488.7	+83					
GREEN-WINGED TEAL	304.2	+34	265.2	+15					
BLUE-WINGED TEAL	3.6	+28	1.6	+125					
NORTHERN SHOVELER	239.8	+10	102.2	+135					
PINTAIL	1,386.6	-48	1,323.3	+5					
SUBTOTAL	3,100.4	-26	2,387.6	+30					
DIVERS:									
REDHEAD	.1	-99	1.8	-94					
CANVASBACK	47.8	-71	84.1	-43					
SCAUP	1,315.3	-25	1,272.9	+3					
RING-NECKED	0.0	n.c.	0.0	n.c.					
AMERICAN GOLDENEYE	104.4	-27	140.0	-25					
BUFFLEHEAD	100.5	+38	69.1	+45					
SUBTOTAL	1,568.1	-27	1,567.9	n.c.					
MISCELLANEOUS:									
OLDSQUAW	906.3	-8	605.4	+50					
EIDER	13.7	-39	25.6	-46					
SCOTER	465.5	+7	380.6	+22					
RUDDY DUCK	0.0	n.c.	0.0	n.c.					
MERGANSER	17.6	+48	5.0	+252					
SUBTOTAL	1,403.1	-4	1,016.6	+38					
TOTAL DUCKS	6,071.6	-22	4,972.1	+22					
COOTS									
AMERICAN COOT	0.0	n.c.	0.0	n.c.					
GRAND TOTAL	6,071.6	-22	4,972.1	+22					

Table B-1a.* Alaska -- Whistling Swan Breeding Population Indexes, 1969 - 1978

(Index Number in Thousands)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	10-year average
Square Miles Sampled	212	212	212	212	212	424	424	424	424	424	
Number Counted	367	227	220	286	257	810	670	1433	762	681	
Population Index	75	46	45	59	53	83	69	147	78	70	73

* Strata 8 - 11 Coastal tundra

Expansion factor 102.5

TABLE B-2. Northern Alberta and the Northwest Territories--1978 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	19 -19 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS		Not applicable			JULY PONDS		Not applicable		
					DUCK BROOD INDEX		Not applicable		
					AVG. BROOD SIZE		Not applicable		
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	1,101.9	-12	1,143.2	-4			Not applicable		
BLACK DUCK	0.0	n.c.	0.0	n.c.					
GADWALL	36.4	-56	30.2	+20					
AMERICAN WIGEON	933.2	+13	716.9	+30					
GREEN-WINGED TEAL	962.6	+58	631.8	+52					
BLUE-WINGED TEAL	396.3	-51	197.5	+101					
NORTHERN SHOVELER	100.0	-76	171.7	-42					
PINTAIL	381.1	-53	470.8	-19					
SUBTOTAL	3,911.5	-19	3,362.1	+16					
DIVERS:									
REDHEAD	81.8	+27	35.3	+132					
CANVASBACK	31.3	-35	54.8	-43					
SCAUP	3,395.4	-5	3,898.2	-13					
RING-NECKED	151.4	-24	113.0	+34					
AMERICAN GOLDENEYE	226.8	+63	92.4	+145					
BUFFLEHEAD	552.1	+36	441.7	+25					
SUBTOTAL	4,438.8	n.c.	4,635.4	-4					
MISCELLANEOUS:									
OLDSQUAW	587.7	-7	719.3	-18					
EIDER	0.0	n.c.	0.0	n.c.					
SCOTER	1,112.3	+29	811.4	+37					
RUDDY DUCK	16.9	-74	35.7	-53					
MERGANSER	268.7	+19	74.6	+260					
SUBTOTAL	1,985.6	+11	1,641.0	+21					
TOTAL DUCKS	10,335.9	-6	9,638.5	+7					
COOTS									
AMERICAN COOT	83.2	-85	119.8	-30					
GRAND TOTAL	10,419.1	-10	9,758.3	+7					

TABLE 8-3. Northern Saskatchewan and Northern Manitoba--1978 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	1964-1977[a] AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS		Not applicable			JULY PONDS		Not applicable		
					DUCK BROOD INDEX	100.8	-24	148.1	-32
					AVG. BROOD SIZE	5.293	-3	5.549	-5
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	1,331.7	+38	1,020.8	+30		36.0	+6	27.8	+29
BLACK DUCK	8.4	-62	5.1	+65		0.0	n.c.	.6	-100
GADWALL	42.1	-36	62.3	-32		.7	-59	2.0	-65
AMERICAN WIGEON	366.3	+47	319.3	+15		6.4	-17	6.9	-7
GREEN-WINGED TEAL	920.0	+103	308.5	+198		16.7	+174	3.4	+391
BLUE-WINGED TEAL	399.6	-9	351.5	+14		.9	-75	2.6	-65
NORTHERN SHOVELER	46.6	-47	51.1	-9		.4	-50	1.2	-67
PINTAIL	108.8	+34	95.5	+14		.4	-75	3.4	-88
SUBTOTAL	3,223.5	+36	2,214.1	+45		61.5	+11	47.9	+28
DIVERS:									
REDHEAD	32.6	-36	59.0	-45		.2	n.c.	1.4	-86
CANVASBACK	30.8	-27	45.7	-33		.7	n.c.	.7	n.c.
SCAUP	849.4	+24	875.1	-3		11.4	-37	20.7	-45
RING-NECKED	329.3	+43	334.3	-1		8.1	-48	14.0	-42
AMERICAN GOLDENEYE	185.1	-37	223.6	-17		.9	-72	2.1	-57
BUFFLEHEAD	244.7	+24	186.1	+31		4.8	-53	5.8	-17
SUBTOTAL	1,671.9	+11	1,723.8	-3		26.1	-45	44.7	-42
MISCELLANEOUS:									
OLDSQUAW	0.0	-100	.6	-100		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	82.3	-1	68.5	+20		0.0	-100	2.6	-100
RUDDY DUCK	15.4	+62	24.8	-38		.4	-43	.8	-50
MERGANSER	490.6	+67	243.8	+101		9.6	+4	8.2	+17
SUBTOTAL	588.3	+51	337.7	+74		10.0	-25	11.6	-14
TOTAL DUCKS	5,483.7	+29	4,275.6	+28		97.6	-16	104.2	-6
COOTS:									
AMERICAN COOT	84.3	-77	151.4	-44					
GRAND TOTAL	5,568.0	+20	4,427.0	+26					

[a] 1967,1972 and 1975 not included in average.

TABLE B- 4. Southern Alberta--1978 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	496.9	+18	736.2	-32	JULY PONDS	357.4	+5	468.6	-24
					DUCK BROOD INDEX	131.9	+69	107.8	+22
					AVG. BROOD SIZE	5.470	+15	5.335	+2

	BREEDING POPULATION ESTIMATES				LATE-NESTING INDEXES			
DUCKS:								
DABBLERS:								
MALLARD	823.5	-3	1,433.6	-42	20.5	+34	18.9	+8
BLACK DUCK	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
GADWALL	279.7	-29	380.2	-26	9.4	+348	8.2	+15
AMERICAN WIGEON	303.5	+56	610.0	-26	8.2	+58	6.3	+30
GREEN-WINGED TEAL	222.3	-32	284.2	-22	5.3	+8	7.7	-31
BLUE-WINGED TEAL	393.3	-48	716.0	-45	17.9	+316	9.7	+84
NORTHERN SHOVELER	407.2	+84	417.9	-2	5.6	n.c.	5.8	-3
PINTAIL	1,087.6	+215	1,303.8	-16	7.8	+129	8.6	-9
SUBTOTAL	3,517.1	+14	4,945.7	-29	74.7	+83	65.2	+14
DIVERS:								
REDHEAD	133.8	-24	149.6	-10	1.6	+14	1.6	n.c.
CANVASBACK	88.2	-17	75.6	+17	.6	-68	1.2	-50
SCAUP	463.0	-3	416.4	+11	26.0	+67	18.8	+38
RING-NECKED	16.3	+112	5.8	+181	1.3	+225	.5	+160
AMERICAN GOLDENEYE	37.5	+752	15.7	+139	.5	+150	.2	+150
BUFFLEHEAD	56.9	+73	37.4	+52	.9	+50	.2	+350
SUBTOTAL	795.7	-1	700.5	+14	30.9	+54	22.5	+37
MISCELLANEOUS:								
OLDSQUAW	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
SCOTER	31.2	+92	18.8	+66	.2	-71	.7	-71
RUDDY DUCK	85.9	-13	80.3	+7	4.0	+100	5.6	-28
MERGANSER	10.2	+240	2.8	+264	0.0	n.c.	.1	-100
SUBTOTAL	127.3	+8	101.9	+25	4.2	+56	6.4	-34
TOTAL DUCKS	4,440.1	+11	5,747.9	-23	109.8	+73	94.1	+17
COOTS								
AMERICAN COOT	168.3	-41	337.1	-50				
GRAND TOTAL	4,608.4	+7	6,085.0	-24				

[illegible]- 5. Southern Saskatchewan--1978 waterfowl breeding ground survey results

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	2,076.5	+80	2,030.2	+2	JULY PONDS	851.4	+18	1,083.4	-21
					DUCK BROOD INDEX	130.4	-10	144.2	-10
					AVG. BROOD SIZE	4.731	-11	5.052	-6

	BREEDING POPULATION ESTIMATES				LATE-NESTING INDEXES			
DUCKS:								
DABBLERS:								
MALLARD	1,911.3	-33	2,605.6	-27	55.4	-13	66.6	-17
BLACK DUCK	0.0	n.c.	.2	-100	0.0	n.c.	0.0	n.c.
GADWALL	818.7	+36	601.2	+36	32.7	-5	28.3	+16
AMERICAN WIGEON	641.5	+39	751.4	-15	9.2	+11	14.0	-34
GREEN-WINGED TEAL	302.1	+36	327.8	-8	5.3	+18	9.2	-42
BLUE-WINGED TEAL	902.4	-45	1,718.7	-47	17.0	-54	24.6	-31
NORTHERN SHOVELER	426.6	+1	704.2	-39	5.5	-28	12.6	-56
PINTAIL	961.7	+43	1,808.5	-47	16.2	-33	27.8	-42
SUBTOTAL	5,964.3	-13	8,517.6	-30	141.3	-22	183.1	-23
DIVERS:								
REDHEAD	184.1	-19	203.0	-9	5.7	-22	6.8	-16
CANVASBACK	128.9	-49	212.4	-39	3.0	-71	4.8	-38
SCAUP	526.1	-25	369.6	+42	21.5	-5	15.9	+35
RING-NECKED	51.8	+15	25.8	+101	3.7	+85	1.6	+131
AMERICAN GOLDENEYE	15.8	-78	22.2	-29	.5		.3	+67
BUFFLEHEAD	58.1	+11	39.5	+47	1.6	-48	2.1	-24
SUBTOTAL	964.8	-29	872.5	+10	36.0	-21	31.5	+14
MISCELLANEOUS:								
OLDSQUAW	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
SCOTER	3.2	-37	4.5	-29	3.0	+100	.5	+500
RUDDY DUCK	68.1	-44	98.8	-31	14.1	-18	16.4	-14
MERGANSER	4.1	+95	2.0	+105	.5		.1	+400
SUBTOTAL	75.4	-42	105.3	-28	17.6	-5	17.0	+4
TOTAL DUCKS	7,004.5	-16	9,495.4	-26	194.9	-20	231.6	-16
COOTS:								
AMERICAN COOT	433.6	-1	842.4	-48				
GRAND TOTAL	7,438.1	-15	10,337.8	-28				

TABLE 8- 6. Southern Manitoba--1978 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	922.7	+108	653.2	+41	JULY PONDS	311.5	-6	332.6	-6
					DUCK BROOD INDEX	44.8	+74	23.3	+92
					AVG. BROOD SIZE	4.950	-12	5.368	-8
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	287.3	+14	338.2	-15		16.3	+23	11.8	+38
BLACK DUCK	.5		.3	+67		0.0	-100	.1	-100
GADWALL	184.6	+207	64.8	+185		1.9	+850	1.1	+73
AMERICAN WIGEON	62.2	+260	44.6	+39		1.6	+700	1.2	+33
GREEN-WINGED TEAL	91.7	+160	105.6	-13		3.7	+362	.9	+311
BLUE-WINGED TEAL	279.2	-5	522.7	-46		7.5	+21	4.5	+67
NORTHERN SHOVELER	65.2	+67	91.6	-29		.6		.8	-25
PINTAIL	90.7	+248	171.6	-47		2.7	+575	1.4	+93
SUBTOTAL	1,061.4	+47	1,339.4	-21		34.3	+60	21.7	+58
DIVERS:									
REDHEAD	30.4	-67	83.6	-64		.6		.7	-14
CANVASBACK	37.3	-31	60.4	-38		.4	+300	.5	-20
SCAUP	231.4	+78	118.7	+95		4.3	+760	1.7	+153
RING-NECKED	31.4	+202	10.4	+202		.2		.3	-33
AMERICAN GOLDENEYE	47.9	+878	16.6	+188		0.0	n.c.	.1	-100
BUFFLEHEAD	33.3	+87	15.2	+119		0.0	n.c.	.2	-100
SUBTOTAL	411.7	+33	304.9	+35		5.5	+817	3.5	+57
MISCELLANEOUS:									
OLDSQUAW	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	.9	+28	.8	+12		0.0	n.c.	0.0	n.c.
RUDDY DUCK	100.0	+48	97.7	+2		3.3	+120	4.2	-21
MERGANSER	6.1	+9	4.0	+52		0.0	n.c.	0.0	n.c.
SUBTOTAL	107.0	+44	102.5	+4		3.3	+120	4.2	-21
TOTAL DUCKS	1,580.1	+43	1,746.8	-10		43.1	+83	29.4	+46
COOTS:									
AMERICAN COOT	283.1	+57	291.1	-3					
GRAND TOTAL	1,863.2	+45	2,037.9	-8					

TABLE B-7. Montana--1978 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	1967-1977[b/] AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	211.3	+10	246.8	-14	JULY PONDS	223.1	+69	178.1	+25
					DUCK BROOD INDEX	72.3	+201	45.8	+58
					AVG. BROOD SIZE	5.206	+11	5.183	n.c.
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	282.6	-15	384.8	-26		3.7	+147	8.0	-54
BLACK DUCK	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
GADWALL	174.8	+69	72.9	+140		3.4	+89	1.5	+127
AMERICAN WIGEON	157.0	+104	171.6	-8		2.0	+82	3.7	-46
GREEN-WINGED TEAL	52.0	+364	69.8	-25		0.0	n.c.	.3	-100
BLUE-WINGED TEAL	93.9	n.c.	141.8	-34		1.4		1.3	+8
NORTHERN SHOVELER	179.2	+222	77.2	+132		0.0	n.c.	.7	-100
PINTAIL	348.9	+194	211.1	+65		1.6	+300	2.0	-20
SUBTOTAL	1,288.4	+63	1,129.2	+14		12.1	+152	17.5	-31
DIVERS:									
REDHEAD	19.3	+122	5.8	+233		.2		.1	+100
CANVASBACK	7.6	+100	6.9	+10		0.0	n.c.	.4	-100
SCAUP	72.1	+164	46.0	+57		1.1	+267	1.0	+10
RING-NECKED	.9	+200	.8	+12		0.0	-100	.1	-100
AMERICAN GOLDENEYE	0.0	-100	1.4	-100		0.0	n.c.	.1	-100
BUFFLEHEAD	1.2		.8	+50		0.0	n.c.	0.0	n.c.
SUBTOTAL	101.1	+148	61.7	+64		1.3	+86	1.7	-24
MISCELLANEOUS:									
OLDSQUAW	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
RUDDY DUCK	50.5	+1132	15.0	+237		.6		.4	+50
MERGANSER	1.2	-29	.7	+71		0.0	n.c.	.1	-100
SUBTOTAL	51.7	+791	15.7	+229		.6		.5	+20
TOTAL DUCKS	1,441.2	+72	1,206.6	+19		14.0	+154	19.7	-29
COOTS									
AMERICAN COOT	95.5	+408	33.1	+188					
GRAND TOTAL	1,536.7	+79	1,239.7	+24					

b/ 1971 not surveyed

TABLE [illegible] 8. North Dakota--1978 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	433.[illegible]	+23	560.5	-.6	JULY PONDS	230.2	+32	349.6	-34
					JULY BROOD INDEX	37.6	+26	39.6	-5
					AVG. BROOD SIZE	5.525	+13	5.688	-3

	BREEDING POPULATION ESTIMATES				LATE-NESTING INDEXES			
DUCKS:								
DABBLERS:								
MALLARD	500.6	+35	561.1	-10	6.2	+24	14.1	-56
BLACK DUCK	0.0	n.c.	0.0	n.c.	0.0	n.c.	0.0	n.c.
GADWALL	244.0	+63	287.1	-15	2.4	+4	11.3	-79
AMERICAN WIGEON	251.9	+87	194.6	+30	.5	-17	1.0	-50
GREEN-WINGED TEAL	37.9	+[illegible]	63.6	-42	0.0	-100	.9	-100
BLUE-WINGED TEAL	737.4	+161	817.2	-10	1.4	-30	8.8	-34
NORTHERN SHOVELER	377.1	+229	224.1	+71	0.0	n.c.	.4	-100
PINTAIL	588.3	+[illegible]	479.3	+23	4.6	+119	2.2	+109
SUBTOTAL	2,572.8	+1[illegible]	2,380.4	n.c.	15.1	+24	38.7	-61
DIVERS:								
REDHEAD	198.1	+[illegible]	133.1	+50	3.5	+600	1.3	+169
CANVASBACK	25.4	+16	32.4	-22	.6	+100	.1	+500
SCAUP	54.1	+141	17.8	+120	.5		.4	+25
[illegible]	12.8	+78	6.4	+100	0.0	n.c.	0.0	n.c.
[illegible]	0.0	[illegible]	.1	-100	0.0	n.c.	0.0	n.c.
[illegible]	.6		.1	+500	0.0	n.c.	0.0	n.c.
SUBTOTAL	295.1	+[illegible]	2[illegible]	+48	4.6	+475	1.8	+156
[illegible]								
[illegible]	[illegible]	[illegible]	0.0	n.c.	0.0	n.c.	0.0	n.c.
[illegible]	[illegible]	[illegible]	0.0	n.c.	0.0	n.c.	0.0	n.c.
[illegible]	[illegible]	[illegible]	0.0	n.c.	0.0	n.c.	0.0	n.c.
[illegible]	11.[illegible]	+[illegible]	1,0[illegible]	-4	2.8	+300	5.3	-47
[illegible]	[illegible]	[illegible]	[illegible]	-100	0.0	n.c.	0.0	n.c.
[illegible]	11[illegible]	[illegible]	100.[illegible]	-1[illegible]	2.8	+300	5.3	-47
[illegible]	3,0[illegible]	+1[illegible]	[illegible]	+[illegible]	[illegible]	+6[illegible]	45.8	-51
[illegible]	[illegible]	+111	[illegible]87.1	+[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	+[illegible]				

TABLE B-9. South Dakota--1978 waterfowl breeding ground survey results.

	WATERFOWL BREEDING PAIR SURVEY (NUMBERS IN THOUSANDS)					WATERFOWL PRODUCTION SURVEY (NUMBERS IN THOUSANDS)			
	1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE		1978	% CHANGE FROM 1977	1968-1977 AVERAGE	% CHANGE FROM AVERAGE
MAY PONDS	427.9	+55	366.7	+17	JULY PONDS	243.8	+50	242.2	+1
					DUCK BROOD INDEX	45.2	+118	30.2	+50
					AVG. BROOD SIZE	4.298	-13	5.099	-16
	BREEDING POPULATION ESTIMATES					LATE-NESTING INDEXES			
DUCKS:									
DABBLERS:									
MALLARD	537.3	+101	421.5	+27		9.8	+85	12.9	-81
BLACK DUCK	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
GADWALL	233.6	+235	158.3	+48		7.1	+294	6.9	+3
AMERICAN WIGEON	257.6	+362	93.0	+177		2.3	+4	2.1	+10
GREEN-WINGED TEAL	65.5	+167	51.6	+27		.7		.6	+17
BLUE-WINGED TEAL	1,287.3	+304	659.4	+95		4.9	+63	5.8	-16
NORTHERN SHOVELER	419.1	+441	148.3	+183		.8	+100	.6	+33
PINTAIL	678.4	+419	250.8	+170		4.1	+273	2.7	+52
SUBTOTAL	3,478.8	+268	1,782.9	+95		29.7	+115	31.6	-6
DIVERS:									
REDHEAD	151.7	+1085	44.4	+242		3.6		.4	+800
CANVASBACK	18.0	+374	8.4	+114		.5		0.0	
SCAUP	69.6	+404	30.8	+126		.4	+100	.2	+100
RING-NECKED	4.6	+820	1.3	+254		0.0	n.c.	0.0	n.c.
AMERICAN GOLDENEYE	1.1		.1	+1000		0.0	n.c.	0.0	n.c.
BUFFLEHEAD	.4		.2	+100		0.0	n.c.	0.0	n.c.
SUBTOTAL	245.4	+694	85.2	+188		4.5	+2150	.6	+650
MISCELLANEOUS:									
OLDSQUAW	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
EIDER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SCOTER	0.0	n.c.	0.0	n.c.		0.0	n.c.	.1	-100
RUDDY DUCK	41.2	+636	61.7	-33		2.1	+950	2.1	n.c.
MERGANSER	0.0	n.c.	0.0	n.c.		0.0	n.c.	0.0	n.c.
SUBTOTAL	41.2	+636	61.7	-33		2.1	+950	2.2	-4
TOTAL DUCKS	3,765.4	+284	1,929.8	+95		36.3	+156	34.4	+6
COOTS									
AMERICAN COOT	221.0	+104	132.3	+67					
GRAND TOTAL	3,986.4	+266	2,062.0	+93					

Table B-10. Minnesota waterfowl breeding population estimates by species and stratum in 1978.[a]

Species	I	II	III	IV	All
Dabbler					
Mallard	11,789	15,147	29,216	13,993	70,145
Black duck	60			143	203
Gadwall	60	235	174	95	564
Wigeon	120	352	174	619	1,265
Green-winged teal			174		174
Blue-winged teal	4,842	7,515	16,134	2,189	30,680
Shoveler	782	822	2,616	95	4,315
Pintail	602	352	1,919	476	3,349
Wood duck	962	470	1,221		2,653
Subtotal	19,217	24,893	51,628	17,610	113,348
Divers					
Redhead	451	352	3,052	190	4,045
Canvasback	1,263	117			117
Ring-necked duck	692	1,409	1,221	333	3,655
Goldeneye	120			1,713	1,833
Bufflehead			872		872
Ruddy duck	481	352	436		1,269
Merganser		117			117
Scaup	2,256	1,879	10,640	1,047	15,822
Subtotal	5,263	4,226	16,221	3,283	28,993
Total Ducks	24,480	29,119	67,849	20,893	142,341
Other					
Coot	2,887	3,758	26,512	666	33,823
Canada geese	782	470	5,843	571	7,666

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[a] Estimates are expanded for coverage but not for visibility.

Table B-11. Estimated number of breeding ducks in Minnesota during the years 1977 and 1978.

Species	Year	Unadjusted population index	Visibility factor	Adjusted population estimate
Mallard	1977	96,164	2.27	218,000
	1978	70,145	2.70	189,000
Blue-winged teal	1977	41,666	5.26	219,000
	1978	30,680	8.33	256,000
Ring-necked duck	1977	4,055	4.16	17,000
	1978	3,654	3.22	12,000
Other ducks	1977	28,195	4.34	122,000
	1978	37,866	4.16	158,000
All ducks	1977	170,080		577,000
	1978	142,345		615,000

Table B-12. Mallard nesting progress in west-central Minnesota as evidenced by the occurrence of drake mallards with hens and other drakes.

Year	Total number of drakes tallied	Percentages of drakes		
		Paired	Single	Flocked
1975	410	3.4	6.8	89.8
1976	225	3.5	7.5	89.0
1977[a]	692	9.9	5.6	84.5
1978	373	2.7	7.5	89.8

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[a] This tally excludes 855 drake mallards gathered with 100 hens on Lightening Lake, Otter Tail County and Clear Lake, Stevens County.

Table B-13. Washington -- Duck and coot breeding population indices by species and stratum.

Species	Stratum: Western Washington	Stratum: Potholes	Stratum: Irrigation	Stratum: Highlands	Total: 1978	Total: 1977	1968-1977 average	Percent change[a]: From average	Percent change[a]: From 1977
Dabblers									
Mallard	10,170	14,640	14,710	3,190	42,710	46,890	54,420	-22	- 9
Gadwall		5,400	240	510	6,150	6,320	5,850	+ 5	- 3
Wigeon		6,690	320	450	7,460	9,950	11,130	-33	-25
Green-winged teal	10	5,120	360	690	6,180	4,690	6,300	- 2	+32
Blue-winged teal[b]	1,200	15,280	3,980	2,340	22,800	54,680	36,440	-37	-58
Shoveler	160	4,120	50	210	4,540	3,290	6,320	-28	+38
Pintail		6,570		760	7,330	3,420	7,060	+ 4	+86
Wood duck	3,890		250	240	4,380	11,880	7,020	-38	-63
Subtotal	15,430	57,820	19,910	8,390	101,550	141,120	134,540	-25	-28
Divers									
Redhead		9,140	1,130		10,270	18,200	14,740	-30	-44
Canvasback		180			180	560	390	-54	-68
Scaup		5,980	100	2,000	8,080	8,390	8,110	- 1	- 4
Ring-necked duck		2,170		2,210	4,380	3,050	3,040	+44	+44
Goldeneye		130		2,590	2,720	3,220	2,880	- 6	-16
Bufflehead				680	680	300	490	+39	+127
Ruddy duck		9,550	720	2,930	13,200	10,430	12,400	+ 6	+27
Subtotal		27,150	1,950	10,410	39,510	44,150	42,050	- 6	-11
American merganser			100	380	480	160	200	+140	+200
Hooded merganser	780			40	820	850	1,580	-48	- 4
Subtotal	780		100	420	1,300	1,010	1,780	-27	+29
Total ducks	16,210	84,970	21,960	19,220	142,360	186,280	178,640	-20	-24
Coot	520	19,330	8,800	6,170	34,820	60,440	37,290	- 6	-42
Grand total	16,730	104,300	30,760	25,390	177,180	246,720	215,930	-18	-28

[a] Rounded to the nearest tenth.

[b] Includes cinnamon teal.

Table B-14. Washington -- Waterfowl production indices comparing 1978 with 1977 and the 1968-1977 average.

Species	1978	1977	1968-77 average	Percent change from Average	Percent change from 1977
Dabblers					
Mallard	119,300	109,800	142,800	-16	+ 9
Gadwall	11,200	11,200	12,600	-11	nc
Wigeon	14,700	17,000	28,000	-48	-14
Green-winged teal	11,300	8,200	15,700	-28	+38
Blue-winged teal[a]	52,300	109,400	95,400	-45	-52
Shoveler	8,200	6,100	19,800	+25	-25
Pintail	15,100	6,000	22,100	-32	+152
Wood duck	23,800	31,800	19,000	+25	-25
Subtotal	255,900	299,500	355,400	-28	-15
Divers					
Redhead	20,600	27,000	30,600	-33	-24
Canvasback	400	900	700	-43	-56
Scaup	12,100	10,000	15,000	-19	+21
Ring-necked duck	5,700	4,500	5,200	+10	+ 7
Goldeneye	4,800	8,000	9,100	-47	-40
Bufflehead	900	500	500	+80	+80
Ruddy duck	25,300	14,800	22,100	+14	+71
Subtotal	69,800	65,700	83,200	-16	+ 6
Mergansers					
American	500	200	400	+25	+150
Hooded	4,500	3,100	3,100	+45	+45
Subtotal	5,000	3,300	3,500	+43	+51
Total ducks	330,700	368,500	442,100	-25	-10
Canada goose	14,500	14,500	12,000	+21	nc
Coot	50,800	75,700	57,200	-11	-33
Grand total	396,000	458,700	511,300	-23	-14

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[a] Includes cinnamon teal

Table B-15. California -- Estimated total nesting pairs and fall population indices in the Sacramento Valley,[a] 1975-78.

	Estimated total nesting pairs				Fall population indices			
Species	1975	1976	1977	1978	1975	1976	1977	1978
Dabblers								
Mallard	39,320	26,520	38,000	30,360	164,220	110,760	158,700	126,800
Gadwall	800	440	840	720	4,000	2,200	4,200	3,600
Cinnamon teal	4,240	2,200	3,960	2,080	15,830	8,220	14,780	7,770
Shoveler	120		80	80	540		360	360
Pintail	720	480	1,080	880	2,780	1,850	4,160	3,390
Subtotal	45,200	29,640	43,960	34,120	187,370	123,030	182,200	141,920
Divers								
Canvasback	600	160	40		2,680	720	180	
Redhead	160			240	720			1,080
Scaup	40				180			
Ruddy duck	1,000	240		200	4,470	1,150		900
Subtotal	1,800	400	40	440	8,050	1,870	180	1,980
Miscellaneous	40	40	280	120	180	180	1,250	540
Total ducks	47,040	30,080	44,280	34,680	195,600	125,080	183,630	144,440
Coot	37,440	22,440	34,680	6,120	172,510	103,400	159,800	28,300

[a] Area--6,216 km^2; Type--agricultural land including 160,000 ha of rice plus managed refuges and gun clubs; Coverage--2 1/2% of aerial transect; Remarks--The number of breeding pairs of ducks and the fall population showed a decrease of 22% while coots showed a 82% decrease.

Table B-16. California -- Estimated total nesting pairs and fall populations indices for the Suisan Marsh,[a] 1975-78.

	Estimated total nesting pairs				Fall population indices			
Species	1975	1976	1977	1978	1975	1976	1977	1978
Dabblers								
Mallard	3,220	1,370	1,380	2,240	13,380	5,700	5,750	7,830
Gadwall	620	160	330	560	3,460	800	1,670	2,800
Cinnamon teal	630	240	330	460	2,330	900	1,250	1,690
Shoveler	140	60	10	30	600	260	60	130
Pintail	160	60	30	110	620	220	100	410
Subtotal	4,770	1,890	2,080	3,400	20,390	7,880	8,830	12,860
Divers								
Redhead								
Ruddy duck	60			20	60			60
Subtotal	60			20	60			60
Miscellaneous	30				120			
Total ducks	4,860	1,890	2,080	3,420	20,570	7,880	8,830	12,920
Coot	2,860	560	1,600	260	13,180	2,580	7,350	1,170

[a] Area--363 km^2; Type--Natural tidal marsh, gun clubs, managed refuges and agricultural land; Coverage--7.5% aerial transect; Remarks--The number of breeding pairs of ducks (1978) increased by 64% from 1977 while fall population increased 46% from 1977. Coots decreased 84% over 1977.

Table B-17. California -- Estimated total nesting pairs and fall population indices for the North San Joaquin Valley (Grasslands),[a] 1975-78.

	Estimated total nesting pairs				Fall population indices			
Species	1975	1976	1977	1978	1975	1976	1977	1978
Dabblers								
Mallard	2,130	1,470	1,590	2,230	6,910	4,580	5,170	7,240
Gadwall	1,040	710	840	900	3,250	2,230	2,650	2,820
Cinnamon teal	1,650	820	890	1,400	5,180	2,550	2,790	4,390
Shoveler	190	120	180	190	590	360	570	570
Pintail	270	120	140	320	840	350	430	1,000
Subtotal	5,280	3,240	3,640	5,040	16,770	10,070	11,610	16,020
Divers								
Redhead	160	80	20	60	500	240	60	180
Ruddy duck	330	140	40	290	890	390	100	800
Subtotal	490	220	60	350	1,390	630	160	980
Miscellaneous	30			10	60			10
Total ducks	5,800	3,460	3,700	5,400	18,220	10,700	11,770	17,010
Coot	7,380	2,890	5,500	1,540	42,720	15,730	29,960	8,390

[a] Area--389 km^2; Type--Gun clubs and flooded pasture and rice lands; Coverage--25% aerial transects to complete coverage; Remarks--Breeding pairs of ducks increased 46% and the fall population increased 45% while coots decreased 72%. Some flooding of low lands along the San Joaquin River and its tributaries created good habitat for nesting ducks.

Table B-18. California -- Estimated total nesting pairs and fall population indices for the South Joaquin Valley.[a] 1975-78.

Species	Estimated total nesting pairs				Fall population indices			
	1975	1976	1977	1978	1975	1976	1977	1978
Dabblers								
Mallard	1,010	830	800	1,130	2,800	2,290	2,200	3,100
Gadwall	170	60	130	180	460	150	360	490
Cinnamon teal	470	180	170	490	1,290	470	470	1,340
Shoveler	90	20		220	250	40		590
Pintail	130	90	150	3,000	340	250	410	8,260
Subtotal	1,870	1,180	1,250	5,020	5,140	3,200	3,440	13,780
Divers								
Canvasback				10				20
Redhead			20	10			40	20
Scaup				10				20
Ruddy duck	40		40	160	110		110	320
Subtotal	40		60	190	110		150	380
Miscellaneous	50			10	120			20
Total ducks	1,960	1,180	1,310	5,220	5,370	3,200	3,590	14,180
Coot	1,210	1,620	1,490	3,010	6,590	8,760	8,100	16,410

[a] Area--approximately 596 km^2; Type--rice land, pasture, and managed refuges; Coverage--aerial and ground, variable (10% to complete coverage); Remarks--duck pairs and the fall population increased over 300% while coots were up 100% from 1977. The Tulare Lake Basin was covered on the survey this year as runoff from the southern Sierra Nevada Mountains inundated about 30 sections of land which created ideal nesting habitat for ducks and coots. The last time these water conditions occurred was during 1969.

Table B-19. California -- Estimated total nesting pairs and fall population indices for Northeastern California,[a] 1975-78.

Species	Estimated total nesting pairs				Fall population indices			
	1975	1976	1977	1978	1975	1976	1977	1978
Dabblers								
Mallard	4,350	4,710	4,360	2,760	28,280	30,610	28,340	17,930
Gadwall	850	1,020	1,140	600	6,640	8,030	8,960	4,710
Cinnamon teal	1,190	970	1,140	730	7,720	6,280	7,090	5,060
Shoveler	190	140	220	200	1,160	870	1,350	1,210
Pintail	1,430	900	730	1,940	8,180	5,160	4,220	11,140
Subtotal	8,010	7,740	7,590	6,280	51,980	50,950	49,960	40,050
Divers								
Canvasback	10	70	30	10	60	320	130	60
Redhead	650	340	930	480	4,470	2,310	5,360	3,280
Scaup	90	70	250	150	540	410	1,550	830
Ruddy duck	130	110	200	140	720	620	1,150	760
Subtotal	880	590	1,410	780	5,790	3,660	8,190	4,930
Miscellaneous	200	110	140	220	970	550	690	1,080
Total ducks	9,090	8,440	9,140	7,280	58,740	55,160	58,840	46,060
Canada goose	680	510	425	780	19,660[b]	15,330[c]	17,880[d]	18,000[e]
Coot	1,120	1,160	2,030	1,360	6,710	6,950	12,170	8,140

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[a] Area--not determined; Type--natural marshes, lakes, and artificial impoundments; Coverage--aerial, complete.

[b] Includes 16,090 nonbreeders.

[c] Includes 12,130 nonbreeders.

[d] Includes 14,780 nonbreeders.

[e] Includes 12,650 nonbreeders; Remarks--Breeding pairs of Canada geese increased 84% from 1977 levels while demonstrating no change in the overall fall population index. Breeding duck pairs were down 20% from 1977 while fall population indices decreased 22% during the same period.

Table B-20. California -- Estimated total nesting pairs and fall population indices for the Klamath Basin,[a] 1975-78.

Species	Estimated total nesting pairs				Fall population indices			
	1975	1976	1977	1978	1975	1976	1977	1978
Dabblers								
Mallard	1,770	2,050	1,180	1,300	11,230	13,130	7,730	8,140
Gadwall	1,750	1,540	2,130	2,540	13,890	10,570	14,840	19,360
Cinnamon teal	2,200	3,660	3,070	1,850	14,470	23,790	19,280	12,570
Shoveler	520	110	310	440	4,070	680	1,970	2,680
Pintail	450	100	120	230	2,860	670	640	1,540
Subtotal	6,690	7,460	6,810	6,360	46,520	48,840	44,460	44,290
Divers								
Canvasback	40	60	50	110	250	300	400	620
Redhead	570	1,050	840	480	3,610	6,230	5,230	3,450
Scaup	40	80	300	430	250	470	1,870	4,030
Ruddy duck	1,820	740	950	1,020	12,460	4,290	4,800	5,560
Subtotal	2,470	1,930	2,140	2,040	16,570	11,290	12,300	13,660
Miscellaneous	40	80	90	390	190	490	480	2,350
Total ducks	9,200	9,470	9,040	8,790	63,280	60,220	57,240	60,300
Canada goose	570	420	710	580	3,140[b]	3,250[c]	3,780[d]	3,650[e]
Coot	2,550	5,400	3,160	4,970	16,750	26,350	17,320	24,800

[a] Area--14,170 ha of water and marsh plus surrounding agricultural lands; Type--great basin, natural and managed marsh area; Coverage--ground and aerial.

[b] Includes 390 nonbreeders.

[c] Includes 1,320 nonbreeders.

[d] Includes 1,080 nonbreeders.

[e] Includes 850 nonbreeders; Remarks--pairs of geese were down 18%, while the fall population showed a 3% decrease. Breeding pairs of ducks were down 3%, while the fall population index was up 5%. Coot pairs were up 57% and the fall population index was up 43%.

Table B-21. California -- Estimated total nesting pairs and fall population indices for the entire state,[a] 1975-78.

Species	Estimated total nesting pairs				Fall population indices			
	1975	1976	1977	1978	1975	1976	1977	1978
Dabblers								
Mallard	51,800	36,950	47,310	40,020	226,820	167,070	207,890	171,040
Gadwall	5,230	3,930	5,410	5,500	31,700	23,980	32,680	33,780
Cinnamon teal	10,380	8,070	9,560	7,060	46,820	42,210	45,660	32,820
Shoveler	1,250	450	800	1,160	7,210	2,210	4,310	5,540
Pintail	3,160	1,750	2,250	6,480	15,620	8,500	9,960	25,740
Subtotal	71,820	51,150	65,330	60,220	328,170	243,970	300,500	268,920
Divers								
Canvasback	210	130	80	130	1,030	620	530	700
Redhead	1,980	1,630	1,850	1,270	11,260	9,500	10,870	8,010
Scaup	170	150	550	590	970	880	3,420	4,880
Ruddy duck	3,380	1,230	1,230	1,830	18,710	6,450	6,160	8,400
Subtotal	5,740	3,140	3,710	3,820	31,970	17,450	20,980	21,990
Miscellaneous	390	230	510	750	1,640	1,220	2,420	4,000
Total ducks	77,950	54,520	69,550	64,790	361,780	262,640	323,900	294,910
Canada goose	1,250	930	1,135	1,360	22,800	18,580	21,660	21,650
Coot	52,560	34,070	48,460	17,260	258,460	163,770	234,700	87,110

[a] A comparative summary of nesting pairs of waterfowl for the past four seasons, together with final fall population including young plus resident adults is shown in the following table. These figures for each year have been derived from the preceding tables. In almost all cases the figures shown for "nesting pairs" are more accurate than those indicating "fall population indices."

Table B-22. Colorado -- Summary of duck breeding pair population estimates in selected areas, 1978.

	Total estimated breeding pairs			Percent change	
Area	1978	1977[a]	long-term[b] average	From 1977	From long-term average
San Luis Valley[c]	28,524		27,855		+ 2
North Park	9,633		17,115		- 44
South Platte Valley	19,182		6,773		+183
Cache la Poudre Valley	12,674		3,662		+246
Yampa Valley	1,708	2,189	2,730	- 22.0	- 37
Brown's Park	805	1,009	1,141	- 20.2	- 29
Total	72,526		59,276		+ 22

[a] Estimates not obtained for most areas in 1977.

[b] San Luis Valley and North Park averages are based on results of 1964 through 1977 and 1968 through 1977 surveys, respectively, because of changes in survey methods utilized prior to those dates. Figures for other areas are 22 year averages.

[c] Aerial counts corrected by species from visibility ratios obtained in the San Luis Valley.

Table B-23. Colorado -- Species composition of 1978 duck breeding pair population.

	Number of breeding pairs			Percent species composition		
Species	1978	1976[a]	1954-76 average	1978	1976	1954-76 average
Mallard	21,313	17,324	27,865	29	24	52
Blue-winged and cinnamon teal	9,267	7,432	5,761	13	10	11
Gadwall	14,311	4,205	5,283	19	6	10
Pintail	3,557	2,980	3,607	5	4	7
Shoveler	5,866	21,145	3,439	8	30	6
Green-winged teal	12,739	9,136	2,743	18	13	51
Redhead	543	3,623	2,314	1	5	4
Wigeon	978	2,750	1,138	1	4	2
Other divers	3,952	2,426	1,560	5	3	3
Total	72,526	71,021	53,710[b]			

[a] Comparative data for 1977 not available.

[b] Species composition computed from data from all areas for the 22 year period regardless of changes in survey method.

Table B-24. Colorado -- Number of Canada Geese observed and estimated production on trend areas in Moffat County, 1978.

Area	Nesting pairs	Non-nesting birds	Total adults	Estimated No. Goslings[a]	Total birds
Yampa River					
Craig-Juniper Springs	22	105	149	65	214
Juniper Springs-Cross Mountain	23	93	139	106	245
Lily Park[b]			98	29	127
Subtotal			386	200	586
Green River					
Brown's Park	73	96	242	285	527
Dinosaur National Monument	39	130	208	198	406
Subtotal	112	226	450	483	933
Little Snake River	20	61	101	90	191
Total			937	773	1,710

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[a] Calculated using average brood size and number of successful nests.
[b] Not surveyed. Calculated totals are averages of 1973-77 totals.

Table B-25. Colorado -- Total estimated number of Canada Geese observed, Moffat County trend areas, 1978.

Area	1978	1977	1967-1977 average	Percent change From 1977	Percent change From 1967-1977 average
Yampa River	586	690	576	- 15	+ 2
Green River					
Brown's Park	527	498	349	+ 6	+51
Dinosaur National Monument (Colorado-Utah)[a]	406	454	383	- 11	+ 6
Little Snake River	191	231	296	- 17	-35
Total	1,710	1,872	1,604	- 9	+ 7

[a] Not surveyed until 1970.

Table B-26. Colorado -- Estimated number of Canada Goose goslings, Moffat County trend areas, 1978.

Area	1978	1977	1967-1977 average	Percent change From 1977	Percent change From 1967-1977 average
Yampa River	200	170	169	+ 18	+ 18
Green River					
Brown's Park	285	210	135	+ 36	+111
Dinosaur National Monument (Colorado, Utah)[a]	198	249	154	- 20	+ 29
Little Snake River	90	54	93	+ 67	- 3
Total	773	683	551	+ 13	+ 40

[a] Not surveyed until 1970.

Table B-27. Results of the north central Colorado goose census, June 19, 1978.

Production Area	Water Area	No. Broods	Total No. Goslings	Total No. Adults and Yearlings	Total Birds
Wellington					
	Terry Lake		35	44	79
	Water Supply and Storage No. 4		18	26	44
	Launer Pond		8	5	13
	Douglas Reservoir			2	2
	North Poudre No. 1			14	14
	Dry Creek Reservoir[a]	4	16	10	26
	North Poudre No. 3	1	1	2	3
	North Poudre No. 5			2	2
	Bureau of Standards No. 1	1	3	25	28
	Divide No. 8[b]	12	35	134	169
	Elder Reservoir	6	18	12	30
	Annex No. 8			20	20
	Van Sant Pond	1	5	17	22
	Cobb Lake		23	117	140
	Watson Lake	3	9	144	153
	Curtis Lake	1	4	69	73
Subtotal			175	643	818
Fort Collins					
	Peterson Ponds			9	9
	Dixon (Herring) Lake	5	16	19	35
	Miller (Maxwell) Pond		9	21	30
	College Lake	2	8	199	207
	Dean Acres	3	14	18	32
	Claymore Lake	1	2	64	66
	Sterling Gravel Pits		43	202	245
	Lindenmeier Lake			81	81
	Grey Lakes	9	41	45	86
	Novak Reservoir	2	8	4	12
	Anderson's Pond		8	31	39
	Parkwood	4	15	39	54
	Timnath Reservoir		61	77	138
	Romily Gravel Pits		22	10	32
	Fossil Creek Reservoir	2	11	21	32
	Schuelke Reservoir	2	9	6	15
	Wolaver Ponds		9	4	13
Subtotal			276	850	1,126

Table B-27. (continued).

Production Area	Water Area	No. Broods	Total No. Goslings	Total No. Adults and Yearlings	Total Birds
Loveland					
	Flatiron Reservoir	1	2	2	4
	Boedecker Reservoir	5	24	85	109
	Flatiron Gravel Pits	6	24	12	36
	Kauffman Gravel Pits	2	6	4	10
	Big Thompson River		12	8	20
	McNeil Reservoir		51	43	94
	Reservoir No. 12		14	12	26
Subtotal			133	166	299
Boulder					
	Ish Lake		4	28	32
	Crystal Lake		11	19	30
	Terry Lake		35[c]	46	81
	Faivre Ponds		8	24	32
	Rest Home Pond		22	32	54
	Sawhill Ponds			29	29
	Valmont Reservoir		57	184	241
	Boulder Valley Farm		15	8	23
	Eddy Pond		8	9	17
	Angus Ranch Pond		6	4	10
Subtotal			166	383	549
Denver					
	Ketring Lake		27	60	87
	Centennial Pond			31	31
	Bowles Lake	6	25	175	200
	Kings Pond	2	5	70	75
	Tule Lakes	2	8	44	52
	Grant Reservoir	3	8	152	160
	Marston Reservoir			36	36
	Pinehurst Country Club	2	7	24	31
	Clairfield Reservoir			15	15
	Kendrick Lake	3	11	41	52
	Federal Center			13	13
	Sloans Lake		35	350	385
	Standley Lake			35	35

Table B-27. (continued).

Production Area	Water Area	No. Broods	Total No. Goslings	Total No. Adults and Goslings	Total Birds
Denver (continued)					
	Denver City Park	4	25	180	205
	Colo. Blvd. and Quincy	1	5	2	7
Subtotal			156	1,228	1,384
Grand Total			906	3,270	4,176

[a] Includes 2 adults and 5 goslings on pond 1 mile north of Dry Creek.
[b] Includes geese located on pond located 1/2 mile west of No. 8.
[c] Goslings and adults not distinguished, therefore separation based on percent on total birds which were goslings during the previous 5 years.

Table B-28. Colorado -- Number of Canada goose goslings produced in north central Colorado production trend areas, 1978.

Area	Number of goslings			Percent change	
	1978	1977	1969-1977 average	From 1977	From 1969-1977
Wellington	175	215	256	- 18.6	- 31.6
Fort Collins	276	288	285	- 4.2	- 3.2
Loveland	133	125	97	+ 6.4	+ 37.1
Boulder	166	142	216	+ 16.9	- 23.1
Denver	156	357	292	- 56.3	- 46.6
Total	906	1,127	1,146	- 19.6	- 20.9

Table B-28a. Colorado -- Number of Canada geese observed in north central Colorado production trend areas, 1978.

Area	Number of geese			Percent change	
	1978	1977	1969-1977 average	From 1977	From 1969-1977
Wellington	643	615	734	+ 4.6	- 12.4
Fort Collins	850	613	693	+ 38.7	+ 22.7
Loveland	166	182	224	- 8.8	- 25.9
Boulder	383	394	594	- 2.8	- 35.5
Denver	1,228	924	1,227	+ 32.9	0.0
Total	3,270	2,728	3,472	+ 19.9	- 5.8

Table B-29. West central Colorado Canada goose breeding pair survey, 1978.

Area	Singles	Pairs	Groups	Goslings
White River				
Meeker-Rio Blanco L.	6	1		
Rio Blanco L. - Rangely	21	14	17	
Rangely-Utah Line	4	11		
Subtotal	31	26	17	
Colorado River				
Glenwood Springs-Silt		2	9	
Silt-DeBeque	26	31	15	4
DeBeque-Palisade	1	1		
Palisade-5th St. Bridge	3	1		
5th St. Bridge-Utah Line	4	4	19	
Subtotal	34	39	43	4
Roaring Fork River				
El Jebel-Glenwood Springs	2		12	
Gunnison River				
Hotchkiss-Delta				
Delta-Grand Junction	4	5		
Subtotal	4	5		
Grand Total	71	70	72	4

Table B-30. Comparison of the number of Canada Goose singles and pairs observed on aerial surveys in west central Colorado, Spring 1977 and 1978.

Area	Number Observed			
	Singles		Pairs	
	1978	1977	1978	1977
White River	31	15	26	32
Roaring Fork River	2	2		6
Colorado River				
Glenwood Springs-5th Street Bridge	30	13	35	33
Bridge-Utah Line	4	2	4	7
Gunnison River				
Hotchkiss-Delta				
Delta-Grand Junction	4		5	11
Total	71	32	70	89

Table B-31. Nebraska -- Duck breeding population composition and change in the Sandhills, 1978.[a]

Species	1978 Total	1976 Total	Percent Change[b]	Percent Composition
Mallard	29,043	20,103	+ 44	23.0
Blue-winged teal	44,042	26,251	+ 68	35.0
Green-winged teal	520	79	+558	0.4
Pintail	9,818	6,451	+ 52	7.8
Gadwall	14,960	9,125	+ 64	11.9
Shoveler	18,047	10,761	+ 68	14.3
Wigeon		79		
Redhead	3,298	1,978	+ 67	2.6
Canvasback	729			0.6
Scaup	5,237	1,187	+341	4.2
Ruddy duck	312	11,157	- 97	0.2
Total	126,006	87,171	+ 45	100.0

[a] Based on data from aerial surveys.
[b] Change from 1976, last previous year of aerial surveys.

Table B-32. Summary, Nebraska Sandhills ground surveys, 1978.

	Class I		Class II		Class III		Single	
	Broods	Ducklings	B	D	B	D	Adults	Pairs
All Species	17	102	10	32	14	70	26	17

Total broods on transect	41	(+273% from 1977)
Total ducklings on transect	204	(+187% from 1977)
Ducklings/brood	4.98	(-1.47 ducklings/brood from 1977)
Total water areas on transect	235	(+10% from 1977)

Table B-33. Wisconsin -- Wetland densities by region, 1973-1978.

Wetland Type[a]	Southeast central 1973	1974	1975	1976	1977	1978	Northern high 1973	1974	1975	1976	1977	1978	Northern low 1973	1974	1975	1976	1977	1978
	Wetlands Recorded per 2.59 square kilometer																	
I, II	5.6	3.0	3.4	3.2	0.9	3.0	1.1	1.2	2.4	1.9	0.9	3.5	2.0	1.0	0.7	1.0	0.6	2.1
III	1.1	0.9	1.1	1.4	0.6	0.7	0.6	0.8	0.9	0.9	0.8	0.6	0.7	0.5	0.6	0.6	0.3	0.4
IV-V	1.4	1.7	1.7	2.3	1.3	2.1	2.7	3.0	3.1	3.4	2.5	3.0	1.7	1.0	1.1	1.2	1.1	1.5
VII-VIII	0.7	0.5	0.7	0.7	0.3	0.8	0.7	0.5	0.7	0.8	0.4	2.1	1.0	0.6	0.7	0.6	0.1	1.9
Streams	1.4	1.2	1.2	1.1	0.9	1.6	1.6	1.5	1.3	1.1	1.1	2.1	3.0	1.9	2.2	1.8	1.6	3.4
Ditches	0.9	1.5	1.9	1.6	1.3	2.2	0.1	0.1	0.3	0.2	0.1	0.4	0.3	0.4	0.5	0.2	0.2	0.7

[a] Based on classification system listed in March, Martz and Hunt (1973).

Table B-34. Wisconsin -- Wetland types occupied by ducks in 1978.

	I	II	III	IV	V	VII	VIII	Stream	Ditch	Total
S.E. Central	18	35	19	39	49	7	0	44	31	242
North Low	1	1	5	5	6	0	6	12	2	38
North Hi (A&B)	1	1	7	39	32	0	3	18	3	114
Total	20	47	31	83	87	7	9	74	36	394
	67		31	170		16		110		394
% Occupied	17.0		7.9	43.1		4.1		27.9		100.0

Table B-35. Wisconsin -- Adjusted breeding duck populations estimates for 1973-1978[a].

Regions and Year	Mallard	Blue-winged teal	Other Species[b]	Total	% Changes Between Years
Southeast-Central					
1973	45,600[c]	101,600	24,900	172,100	
1974	48,100	143,200	46,400	237,700	+38
1975	77,900	219,400	41,000	338,300	+42
1976	49,500	115,500	9,500	174,500	-48
1977	25,700	56,200	12,500	94,400	-46
1978	30,000	62,300	22,900	115,200	+22
Northern High					
1973	12,600	19,300	1,500	33,400	
1974	25,000	9,700	8,700	43,400	+30
1975	13,300	18,100	20,000	51,400	+18
1976	13,300	29,600	12,700	55,600	+ 8
1977	18,200	49,000	25,400	92,600	+67
1978	28,300	20,300	30,700	79,300	-14
Northern Low					
1973	36,800	65,600	18,700	121,100	
1974	23,500	11,900	3,000	38,400	-68
1975	12,800	6,700	4,100	23,600	-39
1976	10,800	11,100	27,400	49,300	+109
1977	15,600	28,800	300	44,700	- 9
1978	21,200	18,300	6,900	46,400	+ 4
All Regions					
1973	95,000	186,500	45,100	326,600	
1974	96,600 (+2%)	164,800 (+12%)	58,100 (+29%)	319,500	- 2
1975	104,000 (+8%)	244,200 (+48%)	65,100 (+12%)	413,300	+29
1976	73,600 (-29%)	156,200 (-36%)	49,600 (-24%)	279,400	-32
1977	59,500 (-19%)	134,000 (-14%)	38,200 (-23%)	231,700	-17
1978	79,500 (+34%)	100,800 (-25%)	60,500 (+58%)	240,800	+ 4
5-Year Average (1973-1977)	85,700	177,100	51,200	314,100	

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[a] Data are expanded aerial counts based on ground surveys to adjust for birds missed by aerial crews. A change of 20% is statistically significant.

[b] Included are: Wood duck, black duck, shoveler, pintail, ring-necked, redhead, green-winged teal, gadwall, wigeon, ruddy duck and hooded merganser.

[c] All estimates rounded to nearest 100.

APPENDIX C. WATERFOWL HARVEST SURVEY TABLES.

Table C-1. Factors used to adjust survey statistics to include the activities of junior hunters.

	Junior hunter adjustment factors			
Estimate	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway and Alaska
Ducks bagged (including sea ducks)	1.03621	1.04655	1.06055	1.04985
Geese bagged	1.02402	1.03369	1.04110	1.04508
Coots bagged	1.08302	1.09034	1.10147	1.09415
Days hunted	1.05174	1.07003	1.08559	1.08708
Ducks lost	1.03641	1.05699	1.07053	1.06152
Geese lost	1.01573	1.03738	1.07067	1.07411
Coots lost	1.08247	1.10282	1.10400	1.10685

Table C-2. Factors used to adjust survey statistics for memory and prestige bias.

	Memory and prestige response bias factors			
Estimate	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway and Alaska
Ducks bagged (including sea ducks)	0.86925	0.77656	0.73902	0.78952
Geese bagged	0.80428	0.84800	0.86838	0.85159
Coots bagged	0.60692	0.63668	0.78878	0.59248

Table C-3. Total retrieved (by species) and unretrieved duck and coot kill in the United States during the 1976 and 1977 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)[a].

	Season	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway	Alaska	United States total
Retrieved duck kill:							
Mallard	1976	484,437	2,373,638	939,671	1,192,533	30,358	5,020,637
	1977	398,797	2,264,941	762,583	956,853	31,500	4,414,674
	% change	-18	-5	-19	-20	+4	-12
Domestic mallard	1976	6,493	3,600	195	386	0	10,674
	1977	8,848	5,502	146	704	0	15,200
	% change	+36	+53	-25	+82	0	+42
Black duck	1976	315,428	114,447	922	0	0	430,797
	1977	192,875	93,319	181	0	0	286,375
	% change	-39	-18	-80	0	0	-34
Black X mallard	1976	8,235	8,028	140	0	0	16,403
	1977	11,079	4,738	0	0	0	15,817
	% change	+35	-41	--	0	0	-4
Mottled duck	1976	16,175	56,109	52,327	0	0	124,611
	1977	11,441	44,612	46,654	0	0	102,707
	% change	-29	-20	-11	0	0	-18
Gadwall	1976	41,135	399,791	318,734	99,354	1,031	860,045
	1977	35,628	378,824	237,020	87,429	860	739,761
	% change	-13	-5	-26	-12	-17	-14
American wigeon	1976	99,911	218,167	180,482	553,431	14,992	1,066,983
	1977	73,473	277,086	204,516	374,942	11,846	941,863
	% change	-26	+27	+13	-32	-21	-12

Table C-3. Continued.

	Season	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway	Alaska	United States total
Retrieved duck kill:							
Green-winged teal	1976	144,023	599,613	482,965	702,004	15,179	1,943,784
	1977	120,217	668,884	467,523	573,594	16,743	1,846,961
	% change	-17	+12	-3	-19	+10	-5
Blue-winged and cinnamon teal	1976	92,643	489,036	175,172	91,148	375	848,374
	1977	45,418	477,833	132,034	83,821	596	739,702
	% change	-51	-2	-25	-8	+59	-13
Northern shoveler	1976	15,275	108,873	98,282	241,036	8,527	471,993
	1977	10,382	117,034	81,495	165,572	6,022	380,505
	% change	-32	+7	-17	-31	-29	-19
Pintail	1976	45,142	162,872	190,173	951,664	26,985	1,376,836
	1977	48,411	196,848	186,814	550,565	28,456	1,011,094
	% change	+7	+21	-2	-42	+5	-27
Wood duck	1976	299,008	672,103	53,264	36,769	0	1,061,144
	1977	324,331	599,983	59,111	35,947	0	1,019,372
	% change	+8	-11	+11	-2	0	-4
Redhead	1976	9,385	51,504	58,168	41,569	0	160,626
	1977	7,580	30,646	44,738	27,886	265	111,115
	% change	-19	-40	-23	-33	++	-44
Canvasback	1976	25,136	34,863	19,134	50,207	468	129,808
	1977	6,267	24,380	10,810	31,289	331	73,077
	% change	-75	-30	-44	-38	-29	-44

Table C-3. Continued

	Season	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway	Alaska	United States total
Retrieved duck kill,							
Eiders	1976	17,524	155	0	0	0	17,679
	1977	13,032	0	0	0	199	13,321
	% change	-26	--	0	0	++	-25
Scoters	1976	40,836	3,640	1,093	2,711	1,124	49,404
	1977	51,591	8,559	876	6,711	331	68,068
	% change	+26	+135	-20	+148	-71	+38
Hooded merganser	1976	22,002	37,977	4,140	3,149	94	67,362
	1977	22,780	38,547	3.479	2,764	0	67,570
	% change	+4	+2	-16	-12	--	0
Other mergansers	1976	18,220	12,635	3,553	8,942	562	43,912
	1977	11,053	12,425	2,145	8,169	66	33,858
	% change	-39	-2	-40	-9	-88	-23
Other ducks	1976	2,164	1,329	2,373	1,163	468	7,497
	1977	1,402	1,689	1,160	782	529	5,562
	% change	-35	+27	-51	-33	+13	-26
Total:	1976	2,090,148	6,068,492	2,769,418	4,152,787	109,909	15,190,754
	1977	1,874,720	5,986,795	2,412,683	3,083,378	108,994	13,466,570
	% change	-10	-1	-13	-26	-1	-11

Table C-3. Continued.

	Season	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway	Alaska	United States total
Retrieved duck kill:							
Greater scaup	1976	52,366	23,970	816	13,683	1,218	92,053
	1977	70,592	26,864	4,044	32,282	1,456	135,238
	% change	+35	+12	+396	+136	+20	+47
Lesser scaup	1976	61,537	340,191	96,822	50,605	3,561	552,716
	1977	189,318	378,104	78,506	48,359	1,787	696,074
	% change	+208	+11	-19	-4	-50	+26
Ring-necked duck	1976	174,962	237,063	60,803	37,159	0	509,987
	1977	117,827	256,894	64,169	20,915	463	460,268
	% change	-33	+8	+6	-44	++	-10
Goldeneye	1976	22,844	46,017	7,709	18,903	2,624	98,097
	1977	19,133	22,959	7,163	26,526	4,566	80,347
	% change	-16	-50	-7	+40	+74	-18
Bufflehead	1976	48,650	49,700	12,038	14,918	1,874	127,180
	1977	69,400	43,027	14,167	28,076	2,581	157,251
	% change	+43	-13	+18	+88	+38	+24
Ruddy duck	1976	10,246	21,556	10,443	40,854	0	83,099
	1977	5,747	12,212	3,267	20,188	0	41,414
	% change	-44	-43	-69	-51	0	-51
Oldsquaw	1976	16,366	1,606	0	597	468	19,037
	1977	8,092	877	81	0	397	9,447
	% change	-51	-46	++	--	-15	-50

Table C-3. Continued

	Season	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway	Alaska	United States total
Unretrieved duck kill:	1976	462,035	1,233,971	519,141	712,847	17,373	2,945,367
	1977	464,308	1,313,314	444,808	520,640	16,542	2,759,612
	% change	0	+6	-14	-27	-5	-6
Total duck kill:	1976	2,552,183	7,302,463	3,288,559	4,865,634	127,282	18,136,121
	1977	2,339,028	7,300,109	2,857,491	3,604,018	125,536	16,226,182
	% change	-8	0	-13	-26	-1	-11
Retrieved coot kill:	1976	125,940	598,709	60,625	143,286	1,105	929,665
	1977	53,591	284,446	40,859	112,883	438	492,217
	% change	-57	-52	-33	-21	-60	-47
Unretrieved coot kill:	1976	29,118	135,547	28,164	55,120	1,350	249,299
	1977	12,962	70,822	16,235	41,540	65	141,624
	% change	-55	-48	-42	-25	-95	-43
Total coot kill:	1976	155,058	734,256	88,789	198,406	2,455	1,178,964
	1977	66,553	355,268	57,094	154,423	503	633,841
	% change	-57	-52	-36	-22	-80	-46

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[a] Includes ducks bagged during all special duck seasons.

Table C-4. Total retrieved (by species) and unretrieved goose kill in the United States during the 1976 and 1977 hunting seasons (retrieved kill estimates adjusted for response bias; all estimates include kill by junior hunters)

	Season	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway	Alaska	United States total
Retrieved goose kill							
Canada goose[a]	1976	362,582	342,208	177,074	175,412	7,081	1,064,357
	1977	462,542	360,149	164,095	185,545	11,061	1,183,392
	% change	+28	+5	-7	+6	+56	+11
Snow goose	1976	16,948	29,270	161,947	140,822	92	349,079
	1977	28,657	43,799	184,358	82,820	614	340,248
	% change	+69	+50	+14	-41	+567	-3
Blue goose	1976	103	71,656	88,680	0	0	160,439
	1977	588	80,577	111,218	0	0	192,383
	% change	+471	+12	+25	0	0	+20
White-fronted goose	1976	0	20,731	33,641	46,272	1,288	101,932
	1977	0	21,727	48,599	32,411	1,229	103,966
	% change	0	+5	+44	-30	-5	+2
Brant	1976	0[b]	0	0	1,213	1,655	2,868
	1977	1,289[b]	0	0	10,150	1,997	13,436
	% change	++	0	0	+737	+21	+368

Table C-4. Continued

	Season	Atlantic flyway	Mississippi flyway	Central flyway	Pacific flyway	Alaska	United States total
Retrieved goose kill,							
Others and unknown	1976	0	0	1,750[c]	7,964[c]	3,863[d]	13,577
	1977	0	0	284[c]	3,949[c]	2,151[d]	6,384
	% change	0	0	-84	-50	-44	-53
Total	1976	379,633	463,866	463,092	371,682	13,979	1,692,252
	1977	493,076	506,253	508,555	314,875	17,052	1,839,811
	% change	+30	+9	+10	-15	+22	+9
Unretrieved kill:	1976	42,397	69,913	68,136	57,385	1,869	239,700
	1977	74,866	84,583	68,903	43,184	2,571	274,107
	% change	+77	+21	+1	-25	+38	+14
Total goose kill:	1976	422,030	533,779	531,228	429,067	15,848	1,931,952
	1977	567,942	590,836	577,458	358,059	19,623	2,113,918
	% change	+35	+11	+9	-17	+24	+9

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[a] Includes all subspecies.
[b] Brant season in Atlantic Flyway closed in 1976 and 1977.
[c] Ross' goose.
[d] Emperor goose.

TABLE C-5. PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS.

	CONNECTICUT		DELAWARE		FLORIDA		GEORGIA	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	26.21%	34.12%	26.92%	41.83%	1.88%	2.39%	23.65%	31.18%
DOMESTIC MALLARD	0.88	0.38	0.43	1.63	0.04	0.00	0.09	0.39
BLACK DUCK	28.85	21.80	25.21	16.36	0.21	0.49	2.19	2.75
BLACK X MALLARD	0.22	7.65	0.00	0.65	0.04	0.09	0.37	0.59
MOTTLED DUCK	0.00	0.00	0.00	0.00	4.85	4.50	0.00	0.00
GADWALL	0.44	0.38	7.27	0.00	1.42	0.67	0.73	0.59
AMERICAN WIGEON	0.66	0.38	1.71	5.88	5.10	4.41	0.73	0.39
GREEN-WINGED TEAL	5.95	10.80	10.23	7.84	6.39	4.81	3.38	2.75
BLUE-WINGED/CINNAMON TEAL	0.44	0.19	0.00	0.33	15.71	10.60	0.91	0.20
NORTHERN SHOVELER	0.00	0.00	3.95	0.00	1.46	1.69	0.46	0.00
PINTAIL	1.10	1.14	2.56	3.60	3.39	7.26	0.27	0.20
WOOD DUCK	7.71	10.63	0.43	3.60	7.40	7.97	55.98	50.78
REDHEAD	0.00	0.00	0.00	0.33	0.92	0.98	0.18	0.00
CANVASBACK	5.95	0.00	2.14	0.65	1.00	0.62	1.01	0.20
GREATER SCAUP	7.49	6.44	2.99	1.63	0.38	1.65	0.00	0.98
LESSER SCAUP	1.54	0.95	4.70	7.84	10.16	19.37	0.73	3.92
RING-NECKED DUCK	0.00	0.57	0.43	0.00	36.02	28.94	8.31	3.92
GOLDENEYES	1.98	0.38	0.43	0.65	0.00	0.00	0.00	0.00
BUFFLEHEAD	4.63	2.27	0.43	3.60	0.42	1.29	0.00	0.78
RUDDY DUCK	0.00	0.19	0.00	0.00	0.54	0.04	0.09	0.30
OLDSQUAW	0.00	0.13	0.00	0.33	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	3.11	5.46	0.00	2.61	0.00	0.13	0.00	0.00
HOODED MERGANSERS	0.44	0.57	0.00	0.33	1.76	1.60	0.82	0.39
OTHER MERGANSERS	2.42	0.57	1.28	0.33	0.33	0.49	0.09	0.00
OTHER DUCKS	0.00	0.00	0.00	0.00	0.59	0.31	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	40,638	51,324	42,125	41,195	333,689	254,416	86,288	90,678
PERCENT CHANGE		+26%		-2%		-24%		+5%
SEASONAL DUCK HARVEST PER ADULT HUNTER	2.89	3.59	3.37	3.19	10.23	9.50	6.18	6.54
PERCENT CHANGE		+24%		-5%		-7%		+6%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	100.00%	96.30%	97.67%	98.98%	100.00%	100.00%	100.00%	100.00%
SNOW GOOSE	0.00	3.70	2.33	1.02	0.00	0.00	0.00	0.00
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	3,964	6,043	53,843	57,423	4,027	3,156	1,025	2,790
PERCENT CHANGE		+52%		+7%		-22%		+172%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.29	0.43	4.36	4.49	0.13	0.12	0.07	0.20
PERCENT CHANGE		+50%		+3%		-5%		+176%
COOT HARVEST (RETRIEVED KILL)	512	256	504	352	48,681	15,213	4,470	2,147
PERCENT CHANGE		-50%		-30%		-69%		-52%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.03	0.02	0.04	0.03	1.43	0.54	0.31	0.15
PERCENT CHANGE		-51%		-33%		-62%		-52%
TOTAL HUNTER DAYS	77,448	87,827	111,359	112,990	213,263	164,707	79,445	81,615
PERCENT CHANGE		+13%		+1%		-23%		+3%
DAYS PER ADULT HUNTER	5.43	6.04	8.77	8.61	6.44	6.06	5.60	5.80
PERCENT CHANGE		+11%		-2%		-6%		+3%
TOTAL DUCK STAMPS SOLD	15,005	15,023	12,429	12,661	32,340	27,144	13,513	13,800
PERCENT CHANGE		0%		+2%		-16%		+2%
PERCENT SOLD TO NON-HUNTERS	9.54%	7.93%	2.85%	1.45%	2.64%	4.75%	0.24%	3.00%
TOTAL ADULT HUNTERS (POTENTIAL)	13,574	13,832	12,075	12,477	31,486	25,855	13,481	13,386
PERCENT CHANGE		+2%		+3%		-18%		-1%
PERCENT ACTIVE ADULT HUNTERS	78.2%	78.2%	90.5%	87.5%	83.7%	83.6%	85.8%	85.7%
PERCENT SUCCESSFUL ADULT HUNTERS	53.9%	52.7%	72.9%	70.6%	72.6%	70.5%	68.7%	67.0%
SAMPLE SIZES								
DUCK WINGS	447	543	234	306	2,393	2,246	1,095	510
GOOSE TAILS	37	27	215	490	0	1	0	0
QUESTIONNAIRES	413	307	271	382	847	1,323	247	636

TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS --continued

	MAINE		MARYLAND[a]		MASSACHUSETTS		NEW HAMPSHIRE	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	4.40%	5.34%	26.96%	33.30%	14.43%	17.74%	12.65%	12.89%
DOMESTIC MALLARD	0.00	0.28	0.00	1.69	0.13	0.54	0.93	0.00
BLACK DUCK	33.34	25.84	29.41	12.98	30.26	27.11	27.15	21.68
BLACK X MALLARD	0.38	0.66	0.68	0.38	0.77	0.62	1.23	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	0.00	0.00	4.77	3.76	0.13	0.71	0.00	0.00
AMERICAN WIGEON	0.38	1.03	1.77	2.26	0.51	1.69	0.31	0.00
GREEN-WINGED TEAL	11.83	13.86	5.04	2.26	8.68	4.28	6.48	4.71
BLUE-WINGED/CINNAMON TEAL	2.89	0.94	0.00	0.19	0.38	1.34	1.23	0.94
NORTHERN SHOVELER	0.00	0.00	0.14	0.19	0.13	0.18	0.00	0.00
PINTAIL	0.76	1.03	1.36	2.26	0.64	0.80	0.00	0.00
WOOD DUCK	10.69	12.45	1.50	0.56	7.41	11.32	27.15	28.28
REDHEAD	0.00	0.00	0.00	0.00	0.13	0.45	0.00	0.00
CANVASBACK	0.00	0.00	0.00	0.00	1.28	0.27	0.00	0.00
GREATER SCAUP	1.01	0.00	3.27	3.39	3.45	2.14	0.62	0.00
LESSER SCAUP	0.76	0.47	1.63	20.69	0.51	0.54	0.31	0.31
RING-NECKED DUCK	1.26	4.03	0.00	0.19	0.13	0.71	2.47	5.97
GOLDENEYES	2.89	4.68	2.45	0.75	3.32	1.96	1.54	0.94
BUFFLEHEAD	6.92	8.80	4.77	3.95	6.26	6.78	0.93	0.31
RUDDY DUCK	0.00	0.28	0.55	0.75	0.38	0.09	0.00	0.31
OLDSQUAW	1.32	1.50	10.95	3.80	1.33	0.21	0.00	1.73
EIDERS	7.44	10.80	0.00	0.00	10.32	6.33	0.00	1.73
SCOTERS	10.48	5.40	3.28	6.28	5.99	12.77	9.93	15.46
HOODED MERGANSERS	1.38	1.22	0.82	0.38	0.13	0.18	2.78	1.89
OTHER MERGANSERS	1.89	1.31	0.68	0.00	3.32	1.25	4.32	2.83
OTHER DUCKS	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	97,366	69,549	86,493	74,995	98,578	76,869	43,659	33,580
PERCENT CHANGE		-29%		-13%		-22%		-23%
SEASONAL DUCK HARVEST PER ADULT HUNTER	5.53	3.87	2.08	1.79	4.29	3.62	4.11	3.20
PERCENT CHANGE		-30%		-14%		-16%		-22%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	100.00%	100.00%	99.62%	99.30%	100.00%	99.14%	100.00%	100.00%
SNOW GOOSE	0.00	0.00	0.32	0.70	0.00	0.86	0.00	0.00
BLUE GOOSE	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	2,739	1,894	162,034	241,187	8,859	6,704	1,296	1,475
PERCENT CHANGE		-31%		+49%		-24%		+14%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.16	0.11	3.95	5.82	0.39	0.32	0.12	0.14
PERCENT CHANGE		-32%		+47%		-18%		+15%
COOT HARVEST (RETRIEVED KILL)	3,572	1,412	203	1,322	2,352	1,128	309	50
PERCENT CHANGE		-60%		+551%		-52%		-84%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.19	0.08	0.01	0.03	0.10	0.05	0.03	0.01
PERCENT CHANGE		-61%		+488%		-48%		-82%
TOTAL HUNTER DAYS	116,483	93,945	308,533	338,116	176,307	150,510	72,525	69,991
PERCENT CHANGE		-19%		+10%		-15%		-3%
DAYS PER ADULT HUNTER	6.48	5.12	7.32	7.94	7.51	6.93	6.69	6.52
PERCENT CHANGE		-21%		+9%		-8%		-3%
TOTAL DUCK STAMPS SOLD	17,458	17,664	40,227	39,921	22,934	22,070	10,879	10,483
PERCENT CHANGE		+1%		-1%		-4%		-4%
PERCENT SOLD TO NON-HUNTERS	2.05%	1.23%	2.88%	3.85%	2.67%	6.44%	5.31%	2.61%
TOTAL ADULT HUNTERS (POTENTIAL)	17,100	17,447	40,101	40,490	22,322	20,649	10,301	10,209
PERCENT CHANGE		+2%		+1%		-7%		-1%
PERCENT ACTIVE ADULT HUNTERS	84.3%	83.0%	85.5%	87.3%	85.2%	83.2%	83.3%	83.4%
PERCENT SUCCESSFUL ADULT HUNTERS	65.6%	60.7%	68.8%	72.0%	60.1%	56.7%	53.2%	57.4%
SAMPLE SIZES								
DUCK WINGS	787	1,058	643	547	698	1,094	304	280
GOOSE TAILS	14	7	1,574	1,708	60	116	6	4
QUESTIONNAIRES	541	661	1,113	697	808	491	221	245

TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS —continued

	NEW JERSEY		NEW YORK		NORTH CAROLINA[a]		PENNSYLVANIA	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	22.59%	19.68%	34.09%	28.50%	21.85%	11.79%	48.86%	44.28%
DOMESTIC MALLARD	0.61	0.84	0.19	0.12	0.40	0.19	0.76	1.79
BLACK DUCK	35.16	21.11	14.80	12.16	8.84	4.70	11.50	7.56
BLACK X MALLARD	0.81	1.17	0.63	1.07	0.16	0.13	0.29	0.80
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	1.62	2.35	1.89	1.91	3.45	2.57	1.24	0.40
AMERICAN WIGEON	3.34	2.43	5.53	3.76	6.83	7.84	4.66	2.09
GREEN-WINGED TEAL	10.13	13.74	6.00	5.60	6.19	4.95	3.71	3.78
BLUE-WINGED/CINNAMON TEAL	3.55	0.75	3.11	1.61	4.58	1.57	0.57	1.19
NORTHERN SHOVELER	0.30	0.67	0.22	0.48	1.77	0.50	0.00	0.20
PINTAIL	2.74	3.27	1.63	1.13	5.94	3.51	0.67	1.00
WOOD DUCK	4.76	8.54	10.96	12.16	21.04	22.76	14.54	21.10
REDHEAD	0.41	0.08	0.82	1.25	0.08	0.06	1.05	0.30
CANVASBACK	2.03	0.34	1.82	0.24	0.08	0.00	0.48	0.80
GREATER SCAUP	4.86	7.45	3.99	9.90	2.65	3.20	1.52	1.69
LESSER SCAUP	1.62	4.52	1.60	3.99	3.37	22.70	2.47	5.27
RING-NECKED DUCK	0.30	0.34	1.23	2.33	6.10	3.07	2.00	1.19
GOLDENEYES	0.10	0.67	1.70	2.38	0.72	0.38	1.05	0.50
BUFFLEHEAD	3.65	9.38	2.61	3.76	2.01	4.20	1.71	3.48
RUDDY DUCK	0.00	0.00	0.28	0.18	1.45	1.00	0.67	0.20
OLDSQUAW	0.30	0.17	0.93	0.38	0.00	0.06	0.29	0.50
EIDERS	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00
SCOTERS	0.81	0.67	3.22	4.69	0.40	2.01	0.48	1.29
HOODED MERGANSERS	0.20	1.84	1.01	0.66	1.85	2.32	0.95	0.50
OTHER MERGANSERS	0.10	0.00	1.73	1.55	0.24	0.50	0.57	0.10
OTHER DUCKS	0.00	0.20	0.00	0.18	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.02	100.00
DUCK HARVEST (RETRIEVED KILL)	167,012	135,821	326,671	258,380	211,746	268,882	180,224	164,833
PERCENT CHANGE		-19%		-21%		+27%		-9%
SEASONAL DUCK HARVEST PER ADULT HUNTER	5.56	4.43	4.17	3.40	7.39	8.92	2.48	2.21
PERCENT CHANGE		-20%		-18%		+21%		-11%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	75.00%	54.97%	100.00%	99.10%	65.00%	51.67%	100.00%	99.02%
SNOW GOOSE	25.00	45.03	0.00	0.90	35.00	47.50	0.00	0.49
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.83	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	23,714	30,415	36,206	39,579	20,955	16,007	33,815	41,519
PERCENT CHANGE		+47%		+9%		-24%		+23%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.70	1.00	0.47	0.53	0.74	0.54	0.47	0.56
PERCENT CHANGE		+44%		+13%		-27%		+20%
COOT HARVEST (RETRIEVED KILL)	4,675	661	4,721	1,972	21,746	13,910	9,623	5,217
PERCENT CHANGE		-86%		-58%		-36%		-46%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.15	0.02	0.06	0.03	0.73	0.44	0.13	0.07
PERCENT CHANGE		-86%		-57%		-39%		-47%
TOTAL HUNTER DAYS	229,512	194,309	457,387	443,953	204,546	213,490	460,937	406,486
PERCENT CHANGE		-15%		-3%		+4%		-12%
DAYS PER ADULT HUNTER	7.53	6.24	5.74	5.74	7.03	6.98	6.25	5.37
PERCENT CHANGE		-17%		0%		-1%		-14%
TOTAL DUCK STAMPS SOLD	31,888	31,550	79,882	79,293	28,132	29,545	72,686	74,213
PERCENT CHANGE		-1%		-1%		+5%		+2%
PERCENT SOLD TO NON-HUNTERS	9.08%	6.21%	5.15%	7.26%	1.91%	2.03%	3.54%	2.96%
TOTAL ADULT HUNTERS (POTENTIAL)	28,993	29,591	75,768	73,536	27,666	29,090	70,113	72,016
PERCENT CHANGE		+2%		-3%		+5%		+3%
PERCENT ACTIVE ADULT HUNTERS	84.1%	86.2%	80.0%	80.7%	86.8%	88.0%	87.0%	86.5%
PERCENT SUCCESSFUL ADULT HUNTERS	63.9%	61.7%	57.2%	56.1%	68.9%	73.4%	56.1%	57.3%
SAMPLE SIZES								
DUCK WINGS	987	1,194	3,167	1,755	1,245	1,595	1,025	1,005
GOOSE TAILS	80	151	203	223	100	120	118	205
QUESTIONNAIRES	744	484	863	1,242	778	870	728	1,078

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TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS--continued

	RHODE ISLAND		SOUTH CAROLINA		VERMONT		VIRGINIA[a]	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	12.54%	7.74%	26.67%	22.56%	28.04%	24.93%	31.54%	23.54%
DOMESTIC MALLARD	0.26	0.43	0.36	0.15	0.00	0.00	0.46	0.30
BLACK DUCK	20.98	22.78	3.15	3.45	25.00	24.67	17.41	8.40
BLACK X MALLARD	1.54	1.08	0.00	0.29	0.34	1.05	0.55	0.30
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	0.00	0.86	2.67	4.63	0.00	0.00	3.74	4.87
AMERICAN WIGEON	0.00	1.08	9.82	5.81	0.34	1.31	10.67	6.00
GREEN-WINGED TEAL	7.68	7.74	6.55	8.89	11.82	15.22	6.02	5.02
BLUE-WINGED/CINNAMON TEAL	0.00	0.43	0.97	1.32	6.42	2.63	3.28	1.05
NORTHERN SHOVELER	0.00	0.00	1.09	0.66	0.34	0.00	0.82	0.68
PINTAIL	0.00	0.22	1.09	1.47	1.69	2.10	2.37	2.40
WOOD DUCK	5.63	4.73	32.73	29.02	10.47	17.85	9.39	21.66
REDHEAD	0.26	0.00	0.24	0.37	0.00	0.00	0.09	0.00
CANVASBACK	2.81	0.43	2.91	0.88	0.68	0.00	0.09	0.08
GREATER SCAUP	33.00	32.07	0.24	0.88	0.68	0.26	2.01	0.83
LESSER SCAUP	3.84	4.73	0.12	9.33	0.34	0.00	0.73	10.57
RING-NECKED DUCK	0.00	0.00	8.12	6.83	2.70	4.20	6.29	4.35
GOLDENEYES	0.51	2.58	0.49	0.29	4.73	0.53	0.82	2.10
BUFFLEHEAD	0.51	2.36	0.61	1.84	2.37	0.00	2.74	4.05
RUDDY DUCK	0.00	0.00	0.97	0.44	0.34	0.26	0.37	0.23
OLDSQUAW	0.00	0.00	0.00	0.00	0.34	0.00	0.09	0.83
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	9.18	8.07	0.00	0.00	2.37	2.63	0.09	0.45
HOODED MERGANSERS	0.51	1.29	1.09	0.88	1.01	2.10	0.18	1.80
OTHER MERGANSERS	0.77	1.50	0.00	0.00	0.00	0.00	0.27	0.53
OTHER DUCKS	0.00	0.00	0.12	0.00	0.00	0.26	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	19,267	23,892	174,392	163,910	35,720	31,181	139,688	130,077
PERCENT CHANGE		+24%		-6%		-13%		-7%
SEASONAL DUCK HARVEST PER ADULT HUNTER	5.33	7.73	7.78	7.06	4.38	3.83	6.70	5.95
PERCENT CHANGE		+45%		-9%		-12%		-11%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	87.88%	83.52%
SNOW GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	12.12	12.09
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	2,377	1,746	3,440	4,621	1,821	2,626	22,011	35,056
PERCENT CHANGE		-27%		+34%		+44%		+59%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.66	0.57	0.16	0.20	0.23	0.33	1.07	1.62
PERCENT CHANGE		-14%		+30%		+44%		+52%
COOT HARVEST (RETRIEVED KILL)	197	84	8,399	7,576	173	171	15,098	1,963
PERCENT CHANGE		-57%		-10%		-1%		-87%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.05	0.03	0.36	0.31	0.02	0.02	0.69	0.09
PERCENT CHANGE		-50%		-13%		0%		-88%
TOTAL HUNTER DAYS	30,820	26,919	173,187	172,735	51,882	45,872	120,516	131,550
PERCENT CHANGE		-13%		0%		-12%		+9%
DAYS PER ADULT HUNTER	8.38	8.55	7.61	7.33	6.26	5.55	5.69	5.93
PERCENT CHANGE		+2%		-4%		-11%		+4%
TOTAL DUCK STAMPS SOLD	3,583	3,112	21,861	22,637	8,067	8,155	20,877	21,460
PERCENT CHANGE		-13%		+4%		+1%		+3%
PERCENT SOLD TO NON-HUNTERS	2.38%	3.85%	1.01%	1.06%	2.37%	3.66%	6.03%	6.55%
TOTAL ADULT HUNTERS (POTENTIAL)	3,498	2,992	21,640	22,397	7,876	7,857	20,135	21,109
PERCENT CHANGE		-14%		+3%		0%		+5%
PERCENT ACTIVE ADULT HUNTERS	84.5%	85.0%	88.6%	89.9%	83.3%	83.8%	82.2%	83.6%
PERCENT SUCCESSFUL ADULT HUNTERS	63.5%	58.1%	70.3%	72.9%	57.1%	59.6%	66.7%	68.1%
SAMPLE SIZES								
DUCK WINGS	356	439	825	1,361	296	381	1,097	1,334
GOOSE TAILS	43	57	1	0	15	21	99	91
QUESTIONNAIRES	252	204	618	719	221	377	825	682

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TABLE C-5 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE ATLANTIC FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS—continued

	WEST VIRGINIA		ATLANTIC FLYWAY TOTAL	
	1976	1977	1976	1977
DUCK SPECIES COMPOSITION				
MALLARD	30.53%	30.44%	23.18%	21.27%
DOMESTIC MALLARD	0.53	2.17	0.31	0.47
BLACK DUCK	24.74	9.42	15.09	10.29
BLACK X MALLARD	0.00	0.00	0.39	0.59
MOTTLED DUCK	0.00	0.00	0.77	0.61
GADWALL	0.00	0.36	1.97	1.90
AMERICAN WIGEON	1.58	1.45	4.78	3.92
GREEN-WINGED TEAL	2.63	2.54	6.89	6.41
BLUE-WINGED/CINNAMON TEAL	2.11	1.81	4.43	2.42
NORTHERN SHOVELER	0.00	0.36	0.73	0.55
PINTAIL	0.53	0.00	2.16	2.58
WOOD DUCK	34.74	45.65	14.31	17.30
REDHEAD	0.53	0.00	0.45	0.40
CANVASBACK	0.00	0.00	1.20	0.33
GREATER SCAUP	0.00	0.36	2.51	3.77
LESSER SCAUP	0.00	1.09	2.94	10.10
RING-NECKED DUCK	0.53	0.00	8.37	6.29
GOLDENEYES	1.05	2.54	1.09	1.02
BUFFLEHEAD	0.00	0.73	2.33	3.70
RUDDY DUCK	0.00	0.36	0.49	0.31
OLDSQUAW	0.00	0.00	0.78	0.43
EIDERS	0.00	0.00	0.94	0.70
SCOTERS	0.00	0.36	1.95	2.75
HOODED MERGANSERS	0.00	0.36	1.05	1.22
OTHER MERGANSERS	0.53	0.00	0.87	0.59
OTHER DUCKS	0.00	0.00	0.10	0.08
TOTAL	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	6,592	5,138	2,090,148	1,874,720
PERCENT CHANGE		-22%		-10%
SEASONAL DUCK HARVEST PER ADULT HUNTER	3.26	2.19	4.83	4.36
PERCENT CHANGE		-33%		-10%

GOOSE SPECIES COMPOSITION				
CANADA GOOSE	100.00%	100.00%	95.51%	93.81%
SNOW GOOSE	0.00	0.00	4.46	5.81
BLUE GOOSE	0.00	0.00	0.03	0.12
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.26
OTHER GEESE	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	507	835	379,633	493,076
PERCENT CHANGE		+65%		+30%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.25	0.36	0.89	1.16
PERCENT CHANGE		+42%		+31%
COOT HARVEST (RETRIEVED KILL)	705	157	125,940	53,591
PERCENT CHANGE		-78%		-57%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.33	0.06	0.28	0.12
PERCENT CHANGE		-81%		-57%
TOTAL HUNTER DAYS	8,935	9,878	2,893,085	2,744,893
PERCENT CHANGE		+11%		-5%
DAYS PER ADULT HUNTER	4.35	4.14	6.58	6.29
PERCENT CHANGE		-5%		-4%
TOTAL DUCK STAMPS SOLD	2,081	2,358	435,932	434,557
PERCENT CHANGE		+13%		0%
PERCENT SOLD TO NON-HUNTERS	6.09%	3.89%	4.09%	4.46%
TOTAL ADULT HUNTERS (POTENTIAL)	1,954	2,266	418,083	415,199
PERCENT CHANGE		+16%		-1%
PERCENT ACTIVE ADULT HUNTERS	84.9%	81.4%	84.3%	84.7%
PERCENT SUCCESSFUL ADULT HUNTERS	64.4%	58.2%	62.9%	62.9%
SAMPLE SIZES				
DUCK WINGS	190	276	15,816	15,922
GOOSE TAILS	2	10	2,567	3,231
QUESTIONNAIRES	202	174	9,692	10,570

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[a] Washington, D. C. hunters and harvest allocated to Maryland, North Carolina, and Virginia.

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TABLE C-6 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE MISSISSIPPI FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS.

	ALABAMA		ARKANSAS		ILLINOIS		INDIANA	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	32.64%	29.74%	73.32%	67.70%	49.99%	51.58%	48.29%	52.22%
DOMESTIC MALLARD	0.00	0.08	0.06	0.00	0.08	0.15	0.26	0.09
BLACK DUCK	6.71	4.77	0.67	0.74	2.90	1.25	8.35	3.43
BLACK X MALLARD	0.20	0.45	0.00	0.12	0.31	0.22	0.00	0.37
MOTTLED DUCK	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	18.17	8.10	8.94	7.63	4.05	6.04	4.24	1.39
AMERICAN WIGEON	4.61	3.48	1.00	2.46	3.13	3.91	1.54	2.78
GREEN-WINGED TEAL	5.93	6.31	2.61	5.60	6.99	6.86	3.84	6.33
BLUE-WINGED/CINNAMON TEAL	3.73	2.46	1.54	0.92	4.02	3.90	6.08	4.40
NORTHERN SHOVELER	0.27	1.21	0.83	0.92	1.22	0.88	0.13	0.37
PINTAIL	2.24	1.84	0.33	1.17	0.92	1.70	0.90	1.30
WOOD DUCK	17.70	24.24	7.16	5.72	9.81	10.10	3.78	13.23
REDHEAD	0.00	0.23	0.00	0.06	1.07	0.59	0.51	0.56
CANVASBACK	0.14	0.53	0.00	0.25	1.07	0.30	2.06	0.37
GREATER SCAUP	0.00	0.91	0.00	0.00	0.08	0.44	0.64	0.19
LESSER SCAUP	4.07	6.21	1.67	3.26	7.57	4.64	2.83	3.34
RING-NECKED DUCK	2.03	5.15	1.11	2.71	4.74	4.86	1.16	2.13
GOLDENEYES	0.41	1.29	0.06	0.00	0.38	0.74	11.30	3.71
BUFFLEHEAD	0.14	1.51	0.11	0.31	0.46	0.74	2.57	1.95
RUDDY DUCK	0.20	0.38	0.28	0.00	0.15	0.07	0.39	0.28
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.07	0.00	0.00	0.06	0.00	0.22	0.00	0.09
HOODED MERGANSERS	0.68	0.83	0.33	0.37	0.54	0.52	0.64	0.84
OTHER MERGANSERS	0.00	0.08	0.00	0.00	0.54	0.30	0.51	0.56
OTHER DUCKS	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	130,521	139,758	651,760	754,334	340,453	375,257	87,110	86,895
PERCENT CHANGE		+7%		+16%		+10%		0%
SEASONAL DUCK HARVEST PER ADULT HUNTER	8.19	8.35	10.70	13.23	5.04	5.63	5.96	5.74
PERCENT CHANGE		+2%		+24%		+12%		-4%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	93.55%	66.67%	68.42%	33.33%	96.48%	99.51%	100.00%	100.00%
SNOW GOOSE	0.00	11.11	5.26	44.44	0.50	0.49	0.00	0.00
BLUE GOOSE	6.45	22.22	21.05	22.22	3.02	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	5.26	0.00	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	5,879	4,067	10,068	9,818	51,321	77,815	6,670	6,792
PERCENT CHANGE		-31%		-2%		+52%		+2%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.37	0.25	0.17	0.17	0.77	1.18	0.46	0.45
PERCENT CHANGE		-34%		+4%		+54%		-2%
COOT HARVEST (RETRIEVED KILL)	8,247	6,177	14,201	6,368	17,122	5,553	4,235	1,667
PERCENT CHANGE		-25%		-55%		-68%		-61%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.50	0.35	0.22	0.11	0.24	0.08	0.28	0.11
PERCENT CHANGE		-29%		-52%		-67%		-62%
TOTAL HUNTER DAYS	117,337	129,001	499,035	552,543	508,382	630,538	110,220	107,323
PERCENT CHANGE		+10%		+11%		+24%		-3%
DAYS PER ADULT HUNTER	7.20	7.54	8.01	9.48	7.36	9.26	7.38	6.93
PERCENT CHANGE		+5%		+18%		+26%		-6%
TOTAL DUCK STAMPS SOLD	15,529	16,437	59,284	54,919	66,655	66,065	15,939	15,215
PERCENT CHANGE		+6%		-7%		-1%		-5%
PERCENT SOLD TO NON-HUNTERS	1.88%	2.70%	1.80%	0.76%	3.21%	3.67%	12.41%	4.88%
TOTAL ADULT HUNTERS (POTENTIAL)	15,237	15,993	58,217	54,502	64,515	63,640	13,961	14,473
PERCENT CHANGE		+5%		-6%		-1%		+4%
PERCENT ACTIVE ADULT HUNTERS	87.5%	83.7%	82.2%	85.9%	84.6%	86.6%	84.3%	85.2%
PERCENT SUCCESSFUL ADULT HUNTERS	73.7%	72.6%	70.4%	74.9%	63.5%	70.0%	65.4%	68.4%
SAMPLE SIZES								
DUCK WINGS	1,524	1,376	1,802	1,605	1,406	1,375	924	1,215
GOOSE TAILS	31	9	19	9	199	204	21	31
QUESTIONNAIRES	1,225	783	463	660	694	860	804	372

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TABLE C-6 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE MISSISSIPPI FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS --continued

	IOWA		KENTUCKY		LOUISIANA		MICHIGAN	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	36.57%	48.72%	60.44%	60.93%	22.80%	16.61%	39.18%	41.15%
DOMESTIC MALLARD	0.07	0.14	0.00	1.14	0.00	0.00	0.11	0.38
BLACK DUCK	0.41	0.14	11.52	11.23	0.13	0.10	3.57	5.05
BLACK X MALLARD	0.00	0.00	0.47	0.57	0.00	0.00	0.14	0.26
MOTTLED DUCK	0.00	0.00	0.00	0.00	2.89	2.28	0.00	0.00
GADWALL	6.96	4.29	2.82	3.24	10.87	9.93	0.79	0.96
AMERICAN WIGEON	2.69	4.15	2.59	2.09	4.76	5.54	2.38	2.62
GREEN-WINGED TEAL	11.30	14.10	3.25	1.52	16.23	17.85	7.40	8.95
BLUE-WINGED/CINNAMON TEAL	13.64	5.81	1.55	0.80	12.37	13.75	5.70	2.68
NORTHERN SHOVELER	0.41	1.52	0.00	0.19	4.36	4.04	0.25	0.13
PINTAIL	1.24	2.76	0.24	1.90	6.28	7.00	1.19	2.11
WOOD DUCK	17.29	13.34	4.42	4.38	8.11	7.19	12.92	9.52
REDHEAD	1.45	0.48	0.47	0.00	0.38	0.17	1.88	1.02
CANVASBACK	0.41	0.35	3.76	1.14	0.25	0.39	0.18	0.58
GREATER SCAUP	0.00	0.07	0.24	0.38	0.18	0.12	2.63	3.90
LESSER SCAUP	3.31	1.66	0.71	3.24	6.61	10.53	8.77	7.86
RING-NECKED DUCK	2.55	1.31	3.76	4.76	2.43	2.59	3.68	3.64
GOLDENEYES	0.90	0.48	0.24	0.76	0.08	0.19	2.85	1.28
BUFFLEHEAD	0.28	0.21	1.88	0.38	0.00	0.12	4.00	3.13
RUDDY DUCK	0.41	0.14	0.47	0.00	0.08	0.39	0.65	0.38
OLDSQUAW	0.00	0.00	0.00	0.00	0.03	0.00	0.18	0.13
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.07	0.00	0.00	0.00	0.00	0.02	0.54	1.98
HOODED MERGANSERS	0.07	0.35	0.94	1.33	0.96	0.82	0.54	1.41
OTHER MERGANSERS	0.00	0.00	0.24	0.00	0.18	0.32	0.47	0.83
OTHER DUCKS	0.00	0.00	0.00	0.00	0.05	0.06	0.00	0.06
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	235,411	257,619	60,869	70,078	1,905,579	1,933,173	456,745	243,083
PERCENT CHANGE		+9%		+15%		+1%		-47%
SEASONAL DUCK HARVEST PER ADULT HUNTER	4.20	4.43	4.13	4.61	14.91	15.28	5.40	3.30
PERCENT CHANGE		+5%		+12%		+3%		-39%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	29.06%	19.29%	99.17%	97.83%	0.00%	1.72%	96.90%	97.06%
SNOW GOOSE	30.77	37.06	0.00	0.00	14.29	17.24	0.00	0.00
BLUE GOOSE	33.33	41.12	0.83	2.17	61.91	56.90	3.10	2.94
WHITE-FRONTED GOOSE	6.84	2.54	0.00	0.00	23.81	24.14	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	24,637	29,907	17,591	13,687	76,434	82,992	26,792	30,781
PERCENT CHANGE		+21%		-22%		+9%		+15%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.45	0.52	1.21	0.91	0.61	0.66	0.32	0.42
PERCENT CHANGE		+17%		-25%		+10%		+32%
COOT HARVEST (RETRIEVED KILL)	7,518	6,586	914	533	377,398	169,172	22,788	5,640
PERCENT CHANGE		-12%		-42%		-55%		-75%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.13	0.11	0.06	0.03	2.83	1.28	0.26	0.07
PERCENT CHANGE		-16%		-43%		-55%		-71%
TOTAL HUNTER DAYS	384,795	435,846	103,196	113,454	1,061,337	1,068,246	588,252	443,131
PERCENT CHANGE		+13%		+10%		+1%		-25%
DAYS PER ADULT HUNTER	6.72	7.33	6.85	7.30	8.12	8.26	6.81	5.89
PERCENT CHANGE		+9%		+7%		+2%		-14%
TOTAL DUCK STAMPS SOLD	55,469	57,143	14,189	14,905	122,861	122,349	84,745	72,096
PERCENT CHANGE		+3%		+5%		0%		-15%
PERCENT SOLD TO NON-HUNTERS	3.45%	2.79%	3.76%	2.49%	0.60%	1.22%	4.71%	2.43%
TOTAL ADULT HUNTERS (POTENTIAL)	53,536	55,549	14,081	14,534	122,124	120,856	80,754	70,344
PERCENT CHANGE		+4%		+3%		-1%		-13%
PERCENT ACTIVE ADULT HUNTERS	84.9%	83.2%	90.3%	85.0%	85.8%	85.8%	87.9%	84.4%
PERCENT SUCCESSFUL ADULT HUNTERS	67.7%	64.6%	71.5%	63.8%	79.3%	78.0%	73.6%	58.4%
SAMPLE SIZES								
DUCK WINGS	1,452	1,447	418	529	4,071	4,279	2,772	1,565
GOOSE TAILS	117	197	120	92	84	58	129	102
QUESTIONNAIRES	729	682	489	465	2,957	1,787	758	724

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TABLE C-6. PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE MISSISSIPPI FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS --continued

	MINNESOTA		MISSISSIPPI		MISSOURI		OHIO	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	27.28%	28.92%	59.38%	54.54%	59.60%	54.04%	36.60%	40.38%
DOMESTIC MALLARD	0.00	0.10	0.00	0.07	0.28	0.00	0.30	0.48
BLACK DUCK	0.10	0.34	1.96	2.09	0.37	0.18	8.63	5.06
BLACK X MALLARD	0.20	0.00	0.20	0.07	0.00	0.00	0.50	0.48
MOTTLED DUCK	0.00	0.00	0.27	0.20	0.00	0.00	0.00	0.00
GADWALL	3.59	3.00	5.94	5.94	3.99	7.00	3.27	1.04
AMERICAN WIGEON	4.10	7.25	2.83	2.50	2.55	5.75	3.17	3.45
GREEN-WINGED TEAL	11.44	10.85	4.63	5.70	6.48	9.82	9.10	5.80
BLUE-WINGED/CINNAMON TEAL	9.70	12.24	1.29	1.42	3.83	4.53	5.90	5.56
NORTHERN SHOVELER	0.61	1.31	1.24	0.88	0.37	1.71	0.30	0.64
PINTAIL	0.81	1.31	0.41	0.47	1.95	1.35	1.59	1.37
WOOD DUCK	14.68	13.08	12.28	14.78	4.27	7.36	17.06	23.94
REDHEAD	2.28	1.69	0.00	0.14	1.02	0.36	1.19	0.88
CANVASBACK	1.82	0.81	0.20	0.27	0.46	0.18	0.79	0.80
GREATER SCAUP	0.35	0.17	0.00	0.20	0.19	0.09	1.09	0.56
LESSER SCAUP	10.37	4.99	0.95	5.67	6.41	3.86	4.36	3.45
RING-NECKED DUCK	9.31	11.73	7.90	3.38	4.73	2.78	1.89	1.12
GOLDENEYES	0.91	0.30	0.07	0.20	0.90	0.27	0.40	0.32
BUFFLEHEAD	1.82	1.38	0.00	0.07	0.46	0.27	0.89	1.61
RUDDY DUCK	0.86	0.03	0.00	0.14	0.55	0.00	2.08	0.88
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
SCOTERS	0.05	0.10	0.00	0.00	0.00	0.09	0.20	0.40
HOODED MERGANSERS	0.71	0.37	0.47	1.22	0.19	0.18	0.40	0.72
OTHER MERGANSERS	0.20	0.03	0.00	0.07	1.21	0.18	0.10	1.04
OTHER DUCKS	0.02	0.20	0.00	0.00	0.09	0.00	0.12	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.02	100.00
DUCK HARVEST (RETRIEVED KILL)	609,451	686,506	369,681	305,557	224,958	286,218	156,260	113,925
PERCENT CHANGE		+13%		-17%		+27%		-27%
SEASONAL DUCK HARVEST PER ADULT HUNTER	6.73	6.41	12.22	9.77	3.67	4.50	3.71	2.98
PERCENT CHANGE		-5%		-20%		+23%		-20%

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GOOSE SPECIES COMPOSITION								
CANADA GOOSE	91.05%	81.62%	98.28%	85.71%	84.58%	76.58%	96.83%	98.90%
SNOW GOOSE	5.22	4.87	0.00	7.14	8.88	13.01	1.59	1.10
BLUE GOOSE	3.73	11.89	1.72	7.14	6.08	10.41	1.59	0.00
WHITE-FRONTED GOOSE	0.00	1.62	0.00	0.00	0.47	0.00	0.00	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	67,826	57,699	9,395	3,273	68,104	77,020	10,416	13,516
PERCENT CHANGE		-15%		-65%		+13%		+30%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.53	0.38	0.32	0.11	1.13	1.23	0.25	0.36
PERCENT CHANGE		-30%		-66%		+9%		+43%
COOT HARVEST (RETRIEVED KILL)	44,009	32,642	7,164	3,561	4,450	3,642	16,059	6,096
PERCENT CHANGE		-26%		-50%		-18%		-62%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.33	0.20	0.23	0.11	0.07	0.05	0.37	0.15
PERCENT CHANGE		-39%		-52%		-21%		-58%
TOTAL HUNTER DAYS	791,104	1,028,405	252,824	224,999	404,013	460,465	297,298	252,906
PERCENT CHANGE		+30%		-11%		+14%		-15%
DAYS PER ADULT HUNTER	6.01	6.46	8.18	7.03	6.45	7.08	6.90	6.47
PERCENT CHANGE		+8%		-14%		+10%		-6%
TOTAL DUCK STAMPS SOLD	125,037	150,805	29,383	30,282	59,601	61,325	41,823	38,412
PERCENT CHANGE		+21%		+3%		+3%		-8%
PERCENT SOLD TO NON-HUNTERS	1.57%	1.36%	1.65%	1.28%	1.78%	0.88%	3.69%	4.89%
TOTAL ADULT HUNTERS (POTENTIAL)	123,074	149,754	28,898	29,896	58,540	60,785	40,280	36,534
PERCENT CHANGE		+21%		+3%		+4%		-9%
PERCENT ACTIVE ADULT HUNTERS	97.9%	91.0%	88.4%	85.3%	88.2%	87.4%	85.4%	87.7%
PERCENT SUCCESSFUL ADULT HUNTERS	70.9%	72.1%	78.7%	74.9%	68.8%	67.4%	63.6%	60.8%
SAMPLE SIZES								
DUCK WINGS	1,976	2,967	1,511	1,508	1,096	1,119	1,090	1,363
GOOSE TAILS	134	185	58	14	214	269	63	91
QUESTIONNAIRES	1,585	1,671	582	659	780	963	1,031	626

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TABLE C-6. PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE MISSISSIPPI FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS —continued

	TENNESSEE		WISCONSIN		MISSISSIPPI FLYWAY TOTAL	
	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION						
MALLARD	58.75%	57.20%	32.94%	35.67%	39.11%	37.83%
DOMESTIC MALLARD	0.20	0.19	0.09	0.16	0.06	0.09
BLACK DUCK	13.28	10.89	1.32	1.57	1.89	1.56
BLACK X MALLARD	0.60	0.00	0.28	0.05	0.13	0.08
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.93	0.75
GADWALL	3.62	4.24	0.99	1.57	6.59	6.33
AMERICAN WIGEON	5.43	3.51	4.23	5.07	3.60	4.63
GREEN-WINGED TEAL	2.88	4.24	9.60	9.47	9.88	11.17
BLUE-WINGED/CINNAMON TEAL	1.75	2.21	12.74	10.15	8.06	7.98
NORTHERN SHOVELER	0.40	0.74	0.52	0.63	1.79	1.96
PINTAIL	0.20	1.29	1.88	2.09	2.68	3.29
WOOD DUCK	7.24	4.27	19.31	15.74	11.08	10.02
REDHEAD	0.00	0.37	1.55	1.10	0.85	0.51
CANVASBACK	0.40	0.00	0.85	0.42	0.57	0.41
GREATER SCAUP	0.60	0.74	0.33	1.46	0.40	0.45
LESSER SCAUP	0.20	2.77	5.22	4.55	5.61	6.32
RING-NECKED DUCK	3.62	4.43	4.98	6.75	3.91	4.29
GOLDENEYES	0.81	0.19	1.13	0.47	0.76	0.38
BUFFLEHEAD	0.00	0.00	1.79	2.35	0.82	0.72
RUDDY DUCK	0.00	0.00	0.47	0.16	0.36	0.20
OLDSQUAW	0.00	0.19	0.05	0.00	0.03	0.02
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.00	0.05	0.11	0.06	0.14
HOODED MERGANSERS	0.00	0.37	0.61	0.47	0.63	0.64
OTHER MERGANSERS	0.00	0.19	0.09	0.00	0.21	0.21
OTHER DUCKS	0.00	0.00	0.00	0.00	0.02	0.03
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	202,719	263,254	636,975	471,138	6,068,492	5,986,795
PERCENT CHANGE		+30%		-26%		-1%
SEASONAL DUCK HARVEST PER ADULT HUNTER	7.37	8.70	4.52	3.24	6.95	6.70
PERCENT CHANGE		+18%		-28%		-4%

GOOSE SPECIES COMPOSITION						
CANADA GOOSE	94.12%	100.00%	96.04%	98.11%	73.77%	71.14%
SNOW GOOSE	0.00	0.00	0.50	0.00	6.31	8.65
BLUE GOOSE	5.88	0.00	3.47	1.89	15.45	15.92
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	4.47	4.29
BRANT	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	42,776	11,155	45,957	87,733	463,866	506,253
PERCENT CHANGE		-74%		+91%		+9%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	1.58	0.37	0.33	0.61	0.54	0.57
PERCENT CHANGE		-76%		+85%		+7%
COOT HARVEST (RETRIEVED KILL)	7,737	5,779	66,867	31,032	598,709	284,446
PERCENT CHANGE		-25%		-54%		-52%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.27	0.18	0.46	0.21	0.66	0.31
PERCENT CHANGE		-32%		-55%		-53%
TOTAL HUNTER DAYS	261,099	246,295	995,302	984,534	6,374,194	6,677,686
PERCENT CHANGE		-6%		-1%		+5%
DAYS PER ADULT HUNTER	9.29	7.96	6.91	6.62	7.14	7.31
PERCENT CHANGE		-14%		-4%		+2%
TOTAL DUCK STAMPS SOLD	26,854	29,575	137,575	142,536	854,924	872,064
PERCENT CHANGE		+10%		+4%		+2%
PERCENT SOLD TO NON-HUNTERS	2.18%	2.23%	2.16%	2.42%	2.44%	2.09%
TOTAL ADULT HUNTERS (POTENTIAL)	26,269	28,915	134,603	139,087	834,089	853,860
PERCENT CHANGE		+10%		+3%		+2%
PERCENT ACTIVE ADULT HUNTERS	96.3%	88.7%	87.9%	87.9%	86.6%	87.0%
PERCENT SUCCESSFUL ADULT HUNTERS	71.4%	72.3%	69.6%	69.6%	70.8%	70.0%
SAMPLE SIZES						
DUCK WINGS	496	536	2,128	1,912	22,666	22,796
GOOSE TAILS	17	14	202	317	1,408	1,592
QUESTIONNAIRES	659	681	1,192	1,216	13,948	12,149

TABLE C-7. PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE CENTRAL FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS.

	COLORADO[a]		KANSAS		MONTANA[a]		NEBRASKA	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	49.61%	47.05%	38.83%	40.77%	60.97%	71.29%	53.06%	53.10%
DOMESTIC MALLARD	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
BLACK DUCK	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	6.22	4.59	10.49	7.58	10.81	5.88	10.85	4.94
AMERICAN WIGEON	7.26	8.79	6.25	6.48	5.48	8.47	4.38	6.87
GREEN-WINGED TEAL	17.09	22.03	18.68	18.66	8.55	5.65	14.05	20.81
BLUE-WINGED/CINNAMON TEAL	10.97	7.25	5.81	7.77	2.74	0.94	3.09	1.73
NORTHERN SHOVELER	2.15	2.48	2.39	2.21	3.23	1.65	1.24	1.94
PINTAIL	2.15	3.31	2.80	4.37	2.74	2.59	2.02	3.47
WOOD DUCK	0.45	0.00	1.48	3.74	0.65	0.47	1.57	2.27
REDHEAD	2.37	1.05	3.91	1.39	1.77	0.00	2.59	0.87
CANVASBACK	0.45	0.45	0.18	0.19	0.16	0.24	0.23	0.07
GREATER SCAUP	0.00	0.15	0.00	0.14	0.00	0.00	0.06	0.00
LESSER SCAUP	0.89	1.20	4.03	1.82	1.29	0.24	1.91	1.27
RING-NECKED DUCK	0.22	0.23	3.21	3.69	0.32	0.71	2.70	1.27
GOLDENEYES	0.30	0.38	0.12	0.38	1.29	0.47	0.51	0.20
BUFFLEHEAD	0.45	0.38	0.41	0.48	0.30	0.47	0.68	0.87
RUDDY DUCK	0.30	0.08	0.64	0.10	0.00	0.00	0.79	0.33
OLDSQUAW	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.08	0.06	0.14	0.00	0.00	0.06	0.00
HOODED MERGANSERS	0.00	0.00	0.12	0.05	0.00	0.24	0.00	0.00
OTHER MERGANSERS	0.15	0.38	0.41	0.05	0.00	0.71	0.17	0.00
OTHER DUCKS	0.00	0.00	0.12	0.00	0.00	0.00	0.02	0.02
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	173,020	107,843	300,621	358,111	48,143	32,698	248,644	274,813
PERCENT CHANGE		-38%		+19%		-32%		+11%
SEASONAL DUCK HARVEST PER ADULT HUNTER	4.05	2.64	4.92	6.03	5.29	4.00	5.44	5.93
PERCENT CHANGE		-35%		+22%		-24%		+9%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	98.76%	100.00%	57.32%	62.86%	100.00%	100.00%	67.53%	59.83%
SNOW GOOSE	1.24	0.00	25.61	14.29	0.00	0.00	14.29	17.09
BLUE GOOSE	0.00	0.00	15.85	14.29	0.00	0.00	11.69	17.09
WHITE-FRONTED GOOSE	0.00	0.00	1.22	8.57	0.00	0.00	6.49	5.98
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	32,419	32,964	27,707	26,686	3,456	3,627	17,852	29,168
PERCENT CHANGE		+2%		-4%		+5%		+63%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.77	0.82	0.46	0.46	0.39	0.45	0.40	0.64
PERCENT CHANGE		+6%		-1%		+17%		+61%
COOT HARVEST (RETRIEVED KILL)	4,060	1,859	4,618	3,338	865	326	3,616	4,557
PERCENT CHANGE		-54%		-28%		-62%		+26%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.09	0.04	0.07	0.05	0.09	0.04	0.08	0.10
PERCENT CHANGE		-52%		-26%		-58%		+25%
TOTAL HUNTER DAYS	326,678	287,386	404,191	388,972	44,506	40,666	337,608	362,915
PERCENT CHANGE		-12%		-4%		-9%		+7%
DAYS PER ADULT HUNTER	7.47	6.88	6.47	6.37	4.78	4.85	7.22	7.65
PERCENT CHANGE		-8%		-2%		+2%		+6%
TOTAL DUCK STAMPS SOLD	40,953	39,808	58,220	57,592	8,748	7,892	44,000	44,502
PERCENT CHANGE		-3%		-1%		-10%		+1%
PERCENT SOLD TO NON-HUNTERS	1.64%	3.32%	1.09%	2.32%	1.88%	2.21%	2.08%	1.79%
TOTAL ADULT HUNTERS (POTENTIAL)	40,281	38,486	57,585	56,256	8,584	7,718	43,085	43,705
PERCENT CHANGE		-4%		-2%		-10%		+1%
PERCENT ACTIVE ADULT HUNTERS	85.1%	84.0%	90.0%	81.3%	77.8%	73.2%	84.1%	87.1%
PERCENT SUCCESSFUL ADULT HUNTERS	63.0%	56.2%	62.5%	62.6%	66.4%	57.6%	65.6%	72.0%
SAMPLE SIZES								
DUCK WINGS	1,316	1,284	1,766	2,116	620	425	1,779	1,499
GOOSE TAILS	242	265	82	70	45	26	77	117
QUESTIONNAIRES	910	993	702	1,039	244	500	768	1,181

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TABLE C-7. PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE CENTRAL FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS —continued

	NEW MEXICO[a]		NORTH DAKOTA		OKLAHOMA		SOUTH DAKOTA	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	43.16%	26.56%	46.77%	47.40%	44.74%	32.88%	40.57%	38.80%
DOMESTIC MALLARD	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.30
BLACK DUCK	0.00	0.00	0.23	0.10	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	11.86	9.60	14.96	15.32	12.63	13.67	15.72	19.67
AMERICAN WIGEON	9.26	8.99	4.63	7.25	7.79	9.14	5.24	8.20
GREEN-WINGED TEAL	12.19	25.91	4.86	9.60	15.29	18.32	13.47	15.67
BLUE-WINGED/CINNAMON TEAL	4.05	3.80	8.81	5.41	3.45	4.67	5.69	2.00
NORTHERN SHOVELER	4.78	3.07	2.66	3.58	1.87	2.36	1.80	2.19
PINTAIL	12.86	16.76	7.44	4.90	1.79	2.93	2.70	2.73
WOOD DUCK	0.00	0.00	0.30	0.41	0.98	3.04	1.50	1.46
REDHEAD	0.98	1.22	1.67	0.61	2.81	2.48	3.44	3.64
CANVASBACK	0.16	0.20	1.37	0.10	0.86	0.84	0.15	0.55
GREATER SCAUP	0.16	0.00	0.30	0.00	0.00	0.06	0.00	0.00
LESSER SCAUP	0.65	0.00	4.78	4.09	2.88	1.91	6.44	0.55
RING-NECKED DUCK	1.14	0.82	0.38	0.92	2.96	6.53	0.75	2.00
GOLDENEYES	0.65	1.23	0.00	0.30	0.47	0.28	0.00	0.36
BUFFLEHEAD	0.16	0.82	0.68	0.41	0.78	0.39	0.75	2.00
RUDDY DUCK	0.00	0.00	0.46	0.00	0.16	0.06	1.20	0.18
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.00	0.00	0.00	0.08	0.06	0.15	0.00
HOODED MERGANSERS	0.16	0.00	0.00	0.10	0.23	0.34	0.45	0.00
OTHER MERGANSERS	0.65	0.41	0.00	0.00	0.16	0.00	0.00	0.00
OTHER DUCKS	0.16	0.61	0.00	0.00	0.08	0.06	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	55,507	31,659	327,534	176,862	223,409	191,994	142,006	150,343
PERCENT CHANGE		-43%		-46%		-14%		+6%
SEASONAL DUCK HARVEST PER ADULT HUNTER	7.83	4.53	5.44	3.00	6.27	6.05	4.54	4.17
PERCENT CHANGE		-42%		-45%		-4%		-8%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	18.28%	18.18%	20.90%	23.60%	86.67%	61.63%	73.68%	40.80%
SNOW GOOSE	77.42	78.41	54.01	46.52	4.00	18.61	15.04	22.40
BLUE GOOSE	1.08	2.27	24.25	26.88	1.33	12.79	11.28	34.40
WHITE-FRONTED GOOSE	0.00	0.00	0.84	3.00	8.00	6.98	0.00	2.40
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE[b]	3.23	1.14	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	4,587	5,080	109,109	157,115	13,935	12,024	43,346	40,505
PERCENT CHANGE		+11%		+44%		-14%		-7%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.66	0.74	1.85	2.72	0.40	0.39	1.41	1.15
PERCENT CHANGE		+12%		+47%		-3%		-19%
COOT HARVEST (RETRIEVED KILL)	1,225	262	6,538	2,503	4,119	5,883	3,807	2,060
PERCENT CHANGE		-79%		-62%		+43%		-46%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.17	0.04	0.11	0.04	0.11	0.18	0.12	0.05
PERCENT CHANGE		-78%		-61%		+61%		-53%
TOTAL HUNTER DAYS	48,753	39,563	402,727	403,789	236,629	214,706	241,717	254,853
PERCENT CHANGE		-19%		0%		-9%		+5%
DAYS PER ADULT HUNTER	6.72	5.54	6.54	6.70	6.49	6.61	7.55	6.91
PERCENT CHANGE		-18%		+2%		+2%		-8%
TOTAL DUCK STAMPS SOLD	6,793	6,766	57,105	57,035	33,895	30,256	30,101	34,783
PERCENT CHANGE		0%		0%		-11%		+16%
PERCENT SOLD TO NON-HUNTERS	1.65%	2.70%	3.62%	2.67%	0.93%	1.11%	1.98%	2.36%
TOTAL ADULT HUNTERS (POTENTIAL)	6,681	6,583	56,751	55,512	33,583	29,920	29,535	33,962
PERCENT CHANGE		-1%		-2%		-11%		+15%
PERCENT ACTIVE ADULT HUNTERS	82.7%	78.2%	90.5%	85.6%	82.5%	81.9%	81.9%	83.4%
PERCENT SUCCESSFUL ADULT HUNTERS	69.1%	59.1%	79.3%	72.9%	68.0%	67.5%	67.7%	69.1%
SAMPLE SIZES								
DUCK WINGS	658	497	1,317	979	1,407	1,877	668	549
GOOSE TAILS	93	88	598	733	75	86	133	125
QUESTIONNAIRES	127	515	684	761	757	807	407	707

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TABLE C-7. PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE CENTRAL FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS—continued

	TEXAS		WYOMING[a]		CENTRAL FLYWAY TOTAL	
	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION						
MALLARD	18.25%	15.16%	61.20%	63.46%	33.93%	31.61%
DOMESTIC MALLARD	0.02	0.00	0.00	0.00	0.01	0.01
BLACK DUCK	0.00	0.00	0.00	0.00	0.03	0.01
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.01	0.00
MOTTLED DUCK	4.32	4.44	0.00	0.00	1.89	1.93
GADWALL	11.19	9.71	6.40	3.85	11.51	9.82
AMERICAN WIGEON	7.22	9.76	7.51	5.61	6.52	8.48
GREEN-WINGED TEAL	22.97	21.72	9.60	15.39	17.44	19.38
BLUE-WINGED/CINNAMON TEAL	6.73	6.67	3.48	1.44	6.33	5.47
NORTHERN SHOVELER	5.31	4.75	0.83	0.16	3.55	3.38
PINTAIL	10.85	12.61	2.23	3.05	6.87	7.74
WOOD DUCK	3.18	2.91	0.00	0.00	1.92	2.45
REDHEAD	1.39	2.30	2.78	1.12	2.10	1.85
CANVASBACK	0.85	0.66	0.42	0.00	0.69	0.45
GREATER SCAUP	0.05	0.11	0.00	0.00	0.03	0.17
LESSER SCAUP	3.40	5.27	0.28	0.00	3.50	3.25
RING-NECKED DUCK	2.90	2.81	0.97	0.64	2.20	2.66
GOLDENEYES	0.19	0.16	3.20	4.01	0.28	0.30
BUFFLEHEAD	0.26	0.42	0.28	0.80	0.44	0.59
RUDDY DUCK	0.19	0.15	0.42	0.00	0.38	0.14
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.03	0.07	0.00	0.00	0.04	0.04
HOODED MERGANSERS	0.21	0.23	0.00	0.00	0.15	0.14
OTHER MERGANSERS	0.06	0.10	0.42	0.48	0.13	0.09
OTHER DUCKS	0.15	0.22	0.00	0.30	0.29	0.05
TOTAL	100.00	100.00	100.00	100.00	100.02	100.00
DUCK HARVEST (RETRIEVED KILL)	1,212,497	1,051,201	38,042	37,159	2,769,618	2,412,683
PERCENT CHANGE		-13%		-2%		-13%
SEASONAL DUCK HARVEST PER ADULT HUNTER	8.25	7.48	4.59	4.24	6.18	5.51
PERCENT CHANGE		-9%		-8%		-11%

GOOSE SPECIES COMPOSITION						
CANADA GOOSE	20.56%	14.07%	100.00%	100.00%	38.24%	32.27%
SNOW GOOSE	39.72	44.05	0.00	0.00	34.97	36.25
BLUE GOOSE	24.42	22.54	0.00	0.00	19.15	21.87
WHITE-FRONTED GOOSE	14.53	19.22	0.00	0.00	7.26	9.56
BRANT	0.00	0.00	0.00	0.00	0.00	0.00
OTHER GEESE[b]	0.77	0.11	0.00	0.00	0.38	0.06
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	207,290	197,899	3,391	3,487	463,092	508,555
PERCENT CHANGE		-5%		+3%		+10%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	1.44	1.43	0.42	0.41	1.05	1.18
PERCENT CHANGE		0%		-3%		+12%
COOT HARVEST (RETRIEVED KILL)	31,225	19,660	552	411	60,625	40,859
PERCENT CHANGE		-37%		-26%		-33%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.21	0.14	0.06	0.04	0.13	0.09
PERCENT CHANGE		-34%		-30%		-31%
TOTAL HUNTER DAYS	910,537	877,618	58,690	48,697	3,012,036	2,919,165
PERCENT CHANGE		-4%		-17%		-3%
DAYS PER ADULT HUNTER	6.05	6.10	6.91	5.43	6.57	6.51
PERCENT CHANGE		+1%		-21%		-1%
TOTAL DUCK STAMPS SOLD	141,840	136,774	8,006	8,463	429,661	423,871
PERCENT CHANGE		-4%		+6%		-1%
PERCENT SOLD TO NON-HUNTERS	2.32%	3.08%	2.30%	2.33%	1.69%	2.57%
TOTAL ADULT HUNTERS (POTENTIAL)	138,549	132,561	7,822	8,266	422,423	412,969
PERCENT CHANGE		-4%		+6%		-2%
PERCENT ACTIVE ADULT HUNTERS	81.1%	81.9%	82.4%	80.1%	83.1%	82.9%
PERCENT SUCCESSFUL ADULT HUNTERS	69.1%	69.8%	63.6%	62.8%	68.4%	67.4%
SAMPLE SIZES						
DUCK WINGS	6,517	6,558	719	624	16,767	16,408
GOOSE TAILS	647	874	45	29	2,037	2,413
QUESTIONNAIRES	5,510	1,940	235	641	10,344	9,084

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[a] Includes only that portion of the State lying within the Central Flyway.
[b] Ross' goose.

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TABLE C-8 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE PACIFIC FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS.

	ARIZONA		CALIFORNIA		COLORADO[a]		IDAHO	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	15.41%	9.71%	15.24%	15.70%	70.92%	68.78%	70.66%	57.11%
DOMESTIC MALLARD	0.28	0.18	0.00	0.00	0.00	0.00	0.06	0.00
BLACK DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	3.08	1.97	1.60	1.95	2.45	1.53	3.68	2.95
AMERICAN WIGEON	6.72	5.61	13.84	11.39	5.98	2.62	3.98	12.97
GREEN-WINGED TEAL	24.58	35.90	18.75	23.05	7.61	18.78	5.90	10.39
BLUE-WINGED/CINNAMON TEAL	12.33	9.97	2.11	3.67	1.63	2.18	2.47	1.92
NORTHERN SHOVELER	5.95	3.65	8.52	8.33	0.54	0.44	1.15	1.33
PINTAIL	13.59	17.36	33.12	26.06	2.45	0.44	5.72	5.82
WOOD DUCK	0.07	0.00	1.20	1.68	0.27	0.00	0.90	0.30
REDHEAD	4.97	3.38	0.29	0.51	0.82	0.22	0.96	0.81
CANVASBACK	1.75	0.09	1.53	1.52	0.00	0.22	0.42	0.37
GREATER SCAUP	0.00	0.18	0.39	1.86	0.00	0.44	0.00	0.00
LESSER SCAUP	1.54	1.07	1.06	2.07	0.54	0.00	0.24	0.15
RING-NECKED DUCK	2.94	4.63	0.83	0.57	2.72	0.00	0.48	0.37
GOLDENEYES	0.84	0.27	0.20	0.30	2.45	2.40	1.93	3.46
BUFFLEHEAD	1.19	1.16	0.17	0.39	0.54	0.44	0.60	0.66
RUDDY DUCK	3.57	4.63	1.03	0.48	0.54	0.00	0.30	0.44
OLDSQUAW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.14	0.00	0.01	0.41	0.00	0.00	0.00	0.00
HOODED MERGANSERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
OTHER MERGANSERS	0.28	0.00	0.09	0.05	0.54	1.53	0.54	0.74
OTHER DUCKS	2.77	0.45	0.01	0.02	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	76,998	58,310	2,077,457	1,365,107	28,684	24,265	282,501	204,243
PERCENT CHANGE		-24%		-34%		-15%		-28%
SEASONAL DUCK HARVEST PER ADULT HUNTER	5.95	5.39	15.34	10.79	5.53	4.41	7.67	5.63
PERCENT CHANGE		-10%		-30%		-20%		-27%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	76.00%	57.14%	24.63%	26.36%	100.00%	100.00%	100.00%	100.00%
SNOW GOOSE	24.00	28.57	52.63	47.28	0.00	0.00	0.00	0.00
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	14.29	19.37	19.02	0.00	0.00	0.00	0.00
BRANT	0.00	0.00	0.21	5.44	0.00	0.00	0.00	0.00
OTHER GEESE[b]	0.00	0.00	3.16	1.90	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	1,137	1,203	235,377	165,876	1,018	1,114	14,758	20,599
PERCENT CHANGE		+6%		-30%		+9%		+40%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.09	0.11	1.75	1.32	0.20	0.20	0.43	0.57
PERCENT CHANGE		+27%		-25%		+3%		+42%
COOT HARVEST (RETRIEVED KILL)	3,453	2,100	83,437	50,088	626	323	17,125	8,590
PERCENT CHANGE		-39%		-40%		-48%		-50%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.26	0.19	0.59	0.38	0.12	0.06	0.45	0.23
PERCENT CHANGE		-27%		-36%		-52%		-49%
TOTAL HUNTER DAYS	71,867	54,603	1,115,589	1,041,092	31,238	27,380	249,266	233,432
PERCENT CHANGE		-24%		-7%		-12%		-6%
DAYS PER ADULT HUNTER	5.36	4.87	7.95	7.94	5.82	4.80	6.53	6.22
PERCENT CHANGE		-9%		0%		-17%		-5%
TOTAL DUCK STAMPS SOLD	12,642	10,566	135,268	128,280	5,024	5,423	35,158	35,484
PERCENT CHANGE		-16%		-5%		+8%		+1%
PERCENT SOLD TO NON-HUNTERS	2.54%	2.38%	4.67%	6.02%	1.64%	3.32%	0.16%	2.63%
TOTAL ADULT HUNTERS (POTENTIAL)	12,321	10,315	129,019	120,558	4,962	5,243	35,102	34,551
PERCENT CHANGE		-16%		-7%		+6%		-2%
PERCENT ACTIVE ADULT HUNTERS	79.3%	77.6%	89.1%	86.2%	86.2%	78.6%	80.3%	81.1%
PERCENT SUCCESSFUL ADULT HUNTERS	61.7%	59.3%	79.8%	71.7%	71.4%	60.2%	65.8%	66.1%
SAMPLE SIZES								
DUCK WINGS	1,428	1,123	6,981	4,356	368	458	1,660	1,357
GOOSE TAILS	25	7	475	369	3	0	90	89
QUESTIONNAIRES	512	725	3,573	2,735	170	418	403	677

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TABLE C-8 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE PACIFIC FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS --continued

	MONTANA[a]		NEVADA		NEW MEXICO[a]		OREGON	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	58.44%	66.26%	28.79%	21.20%	36.00%	38.24%	35.43%	40.14%
DOMESTIC MALLARD	0.30	0.10	0.00	0.15	0.00	0.00	0.00	0.00
BLACK DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	3.65	3.38	4.56	7.68	10.40	10.59	2.02	2.70
AMERICAN WIGEON	5.13	6.26	11.19	10.60	17.60	21.18	21.27	18.39
GREEN-WINGED TEAL	7.30	6.65	23.81	23.96	8.80	8.24	16.33	13.10
BLUE-WINGED/CINNAMON TEAL	2.61	1.19	7.31	5.53	16.80	0.00	0.08	0.72
NORTHERN SHOVELER	1.91	2.78	2.33	5.99	0.80	1.18	1.12	3.07
PINTAIL	4.00	4.77	12.85	15.36	3.20	1.18	17.60	11.48
WOOD DUCK	1.57	0.79	0.44	0.15	0.00	0.00	1.20	2.89
REDHEAD	1.34	0.79	3.77	2.46	1.60	1.18	0.52	0.48
CANVASBACK	1.04	0.75	2.33	0.77	0.00	0.59	0.60	0.60
GREATER SCAUP	0.09	0.00	0.00	0.15	0.00	0.00	0.67	0.78
LESSER SCAUP	5.91	3.77	0.33	1.38	0.00	0.00	0.75	0.78
RING-NECKED DUCK	1.74	0.20	1.00	1.23	0.80	2.94	0.90	0.90
GOLDENEYES	3.13	1.69	0.11	0.92	0.80	6.47	0.00	0.90
BUFFLEHEAD	1.13	0.30	0.00	0.77	0.00	1.77	0.38	1.92
RUDDY DUCK	0.44	0.00	0.78	1.08	0.80	0.00	0.45	0.60
OLDSQUAW	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.17	0.09	0.11	0.00	0.00	0.00	0.30	0.00
HOODED MERGANSERS	0.26	0.10	0.00	0.00	0.00	0.00	0.00	0.06
OTHER MERGANSERS	0.35	0.22	0.33	0.61	2.40	5.29	0.38	0.48
OTHER DUCKS	0.00	0.00	0.00	0.00	0.00	1.18	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	166,682	141,277	111,179	69,566	7,851	2,802	480,792	365,124
PERCENT CHANGE		-15%		-37%		64%		-24%
SEASONAL DUCK HARVEST PER ADULT HUNTER	7.56	6.27	8.22	6.07	7.46	2.62	8.78	6.36
PERCENT CHANGE		-17%		-26%		-65%		-28%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	91.67%	85.29%	65.71%	85.37%	100.00%	100.00%	71.22%	96.41%
SNOW GOOSE	8.33	8.82	31.43	14.63	0.00	0.00	26.62	2.40
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	1.44	0.00
BRANT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
OTHER GEESE[b]	0.00	5.88	2.86	0.00	0.00	0.00	0.72	0.60
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	8,369	8,970	5,618	4,740	86	279	47,467	45,344
PERCENT CHANGE		+7%		-28%		+224%		-4%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.38	0.40	0.49	0.42	0.08	0.26	0.87	0.79
PERCENT CHANGE		+5%		-15%		+220%		-9%
COOT HARVEST (RETRIEVED KILL)	2,206	19,631	4,095	3,526	85	77	15,396	9,771
PERCENT CHANGE		+790%		-14%		-9%		-37%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.10	0.84	0.29	0.30	0.08	0.07	0.27	0.16
PERCENT CHANGE		+770%		+1%		-12%		-40%
TOTAL HUNTER DAYS	156,105	127,240	78,132	69,134	6,713	4,657	367,905	377,530
PERCENT CHANGE		-17%		-12%		-31%		+3%
DAYS PER ADULT HUNTER	6.76	5.45	5.58	5.83	6.16	4.20	6.49	6.36
PERCENT CHANGE		-19%		+4%		-32%		-2%
TOTAL DUCK STAMPS SOLD	21,366	21,966	13,146	11,145	1,019	1,048	53,108	56,224
PERCENT CHANGE		+3%		-15%		+3%		+6%
PERCENT SOLD TO NON-HUNTERS	1.88%	2.21%	2.04%	2.12%	1.65%	2.70%	1.82%	2.80%
TOTAL ADULT HUNTERS (POTENTIAL)	20,964	21,481	12,878	10,909	1,002	1,020	52,141	54,650
PERCENT CHANGE		+2%		-15%		+2%		+5%
PERCENT ACTIVE ADULT HUNTERS	82.4%	90.7%	82.4%	79.6%	79.8%	69.9%	82.8%	82.1%
PERCENT SUCCESSFUL ADULT HUNTERS	49.3%	67.3%	71.4%	61.8%	68.4%	44.5%	69.7%	64.0%
SAMPLE SIZES								
DUCK WINGS	1,150	1,007	903	651	125	170	1,335	1,664
GOOSE TAILS	60	68	35	41	0	0	139	167
QUESTIONNAIRES	477	601	835	745	169	91	1,218	1,035

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TABLE C-8 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN THE PACIFIC FLYWAY DURING THE 1976 AND 1977 HUNTING SEASONS —continued

	UTAH		WASHINGTON		WYOMING[a]		PACIFIC FLYWAY TOTAL	
	1976	1977	1976	1977	1976	1977	1976	1977
DUCK SPECIES COMPOSITION								
MALLARD	21.24%	23.57%	47.18%	48.17%	68.06%	64.91%	28.72%	31.03%
DOMESTIC MALLARD	0.00	0.00	0.00	0.06	0.00	0.00	0.01	0.02
BLACK DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLACK X MALLARD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTTLED DUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GADWALL	5.33	10.37	1.29	0.83	6.94	5.26	2.39	2.84
AMERICAN WIGEON	6.86	6.92	17.86	15.04	8.33	3.51	13.33	12.16
GREEN-WINGED TEAL	19.45	18.00	15.62	15.90	6.02	10.53	16.90	18.60
BLUE-WINGED/CINNAMON TEAL	4.17	5.15	0.17	0.25	1.39	1.17	2.20	2.72
NORTHERN SHOVELER	9.87	4.59	2.24	2.68	0.93	0.00	5.80	5.37
PINTAIL	21.26	17.63	9.64	11.57	2.78	5.26	22.92	17.86
WOOD DUCK	0.00	0.03	0.04	0.12	0.00	0.00	0.89	1.17
REDHEAD	4.92	4.38	0.42	0.19	0.00	0.00	1.00	0.90
CANVASBACK	1.34	1.48	0.66	0.34	0.93	0.00	1.21	1.02
GREATER SCAUP	0.00	0.14	0.47	0.58	0.00	0.00	0.33	1.05
LESSER SCAUP	1.94	2.40	1.04	0.65	0.00	0.00	1.22	1.57
RING-NECKED DUCK	0.38	0.00	1.25	0.89	0.46	0.00	0.90	0.68
GOLDENEYES	0.00	1.06	0.42	0.77	2.78	7.02	0.46	0.86
BUFFLEHEAD	0.22	1.62	0.75	1.42	0.00	1.17	0.36	0.91
RUDDY DUCK	2.98	2.26	0.17	0.19	0.46	0.00	0.98	0.66
OLDSQUAW	0.00	0.00	0.08	0.00	0.00	0.00	0.01	0.00
EIDERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTERS	0.00	0.07	0.09	0.15	0.00	0.00	0.07	0.22
HOODED MERGANSERS	0.00	0.07	0.50	0.31	0.00	0.00	0.08	0.09
OTHER MERGANSERS	0.33	0.49	0.21	0.28	0.93	1.17	0.22	0.27
OTHER DUCKS	2.28	0.00	0.00	0.03	0.00	0.00	0.03	0.03
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	366,309	268,801	544,656	573,861	10,178	13,022	4,152,787	3,083,378
PERCENT CHANGE		-27%		+5%		+28%		-26%
SEASONAL DUCK HARVEST PER ADULT HUNTER	8.60	6.30	7.62	8.05	4.17	5.12	10.43	7.95
PERCENT CHANGE		-27%		+6%		+23%		-24%

GOOSE SPECIES COMPOSITION								
CANADA GOOSE	98.94%	94.52%	95.83%	96.08%	93.75%	100.00%	47.19%	58.93%
SNOW GOOSE	1.06	4.11	2.50	0.78	6.25	0.00	37.89	26.30
BLUE GOOSE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WHITE-FRONTED GOOSE	0.00	1.37	0.00	0.78	0.00	0.00	12.45	10.29
BRANT	0.00	0.00	1.67	2.35	0.00	0.00	0.33	3.22
OTHER GEESE[b]	0.00	0.00	0.00	0.00	0.00	0.00	2.14	1.25
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	13,185	29,104	43,023	36,696	753	1,052	371,682	314,875
PERCENT CHANGE		+121%		-15%		+40%		-15%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.31	0.69	0.63	0.52	0.31	0.42	0.94	0.82
PERCENT CHANGE		+123%		-14%		+34%		-13%
COOT HARVEST (RETRIEVED KILL)	9,906	8,390	6,870	10,252	87	135	143,286	112,883
PERCENT CHANGE		-15%		+49%		+55%		-21%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.22	0.19	0.09	0.14	0.03	0.05	0.35	0.28
PERCENT CHANGE		-14%		+50%		+50%		-19%
TOTAL HUNTER DAYS	299,210	333,495	551,385	539,637	10,426	13,569	2,937,816	2,821,769
PERCENT CHANGE		+11%		-2%		+30%		-4%
DAYS PER ADULT HUNTER	6.79	7.66	7.47	7.31	4.13	5.16	7.12	7.03
PERCENT CHANGE		+12%		-2%		+25%		-1%
TOTAL DUCK STAMPS SOLD	40,658	40,319	68,573	70,261	2,378	2,479	388,340	383,195
PERCENT CHANGE		-1%		+2%		+4%		-1%
PERCENT SOLD TO NON-HUNTERS	0.33%	0.37%	0.68%	3.31%	2.30%	2.33%	2.32%	3.64%
TOTAL ADULT HUNTERS (POTENTIAL)	40,524	40,170	68,107	67,935	2,323	2,421	379,323	369,253
PERCENT CHANGE		-1%		0%		+4%		-3%
PERCENT ACTIVE ADULT HUNTERS	89.2%	88.8%	91.0%	83.7%	80.7%	78.6%	84.9%	84.0%
PERCENT SUCCESSFUL ADULT HUNTERS	75.0%	71.9%	66.1%	68.0%	62.8%	64.7%	72.4%	68.2%
SAMPLE SIZES								
DUCK WINGS	1,342	1,417	2,408	3,251	216	171	17,916	15,625
GOOSE TAILS	94	73	120	255	16	27	1,037	1,095
QUESTIONNAIRES	735	651	878	1,300	135	146	9,105	9,124

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[a] Includes only that portion of the State lying within the Pacific Flyway.
[b] Ross' goose.

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TABLE C-9 PERCENTAGE SPECIES COMPOSITION OF WATERFOWL HARVESTED, TOTAL NUMBERS HARVESTED, AND ADULT HUNTER STATISTICS IN ALASKA AND FOR THE ENTIRE UNITED STATES DURING THE 1976 AND 1977 HUNTING SEASONS.

	ALASKA		UNITED STATES TOTAL	
	1976	1977	1976	1977
DUCK SPECIES COMPOSITION				
MALLARD	27.62%	28.90%	33.05%	32.78%
DOMESTIC MALLARD	0.00	0.00	0.07	0.11
BLACK DUCK	0.00	0.00	2.84	2.13
BLACK X MALLARD	0.00	0.00	0.11	0.12
MOTTLED DUCK	0.00	0.00	0.82	0.76
GADWALL	0.94	0.79	5.66	5.49
AMERICAN WIGEON	13.64	10.87	7.02	6.99
GREEN-WINGED TEAL	13.81	15.36	12.80	13.72
BLUE-WINGED/CINNAMON TEAL	0.34	0.55	5.59	5.49
NORTHERN SHOVELER	7.76	5.53	3.11	2.83
PINTAIL	24.55	26.11	9.06	7.51
WOOD DUCK	0.00	0.00	6.99	7.57
REDHEAD	0.00	0.24	1.06	0.83
CANVASBACK	0.43	0.30	0.86	0.54
GREATER SCAUP	1.11	1.34	0.61	1.00
LESSER SCAUP	3.24	1.64	3.64	5.17
RING-NECKED DUCK	0.00	0.43	3.36	3.42
GOLDENEYES	2.39	4.19	0.65	0.60
BUFFLEHEAD	1.71	2.37	0.84	1.17
RUDDY DUCK	0.00	0.00	0.55	0.31
OLDSQUAW	0.43	0.36	0.13	0.07
EIDERS	0.00	0.18	0.12	0.10
SCOTERS	1.02	0.30	0.33	0.51
HOODED MERGANSERS	0.09	0.00	0.44	0.50
OTHER MERGANSERS	0.51	0.06	0.29	0.25
OTHER DUCKS	0.43	0.49	0.05	0.04
TOTAL	100.00	100.00	100.00	100.00
DUCK HARVEST (RETRIEVED KILL)	109,909	108,994	15,190,754	13,466,570
PERCENT CHANGE		-1%		-11%
SEASONAL DUCK HARVEST PER ADULT HUNTER	5.69	5.40	6.99	6.21
PERCENT CHANGE		-4%		-11%

GOOSE SPECIES COMPOSITION				
CANADA GOOSE	50.66%	64.87%	62.90%	64.32%
SNOW GOOSE	0.66	3.60	20.63	18.49
BLUE GOOSE	0.00	0.00	9.48	10.46
WHITE-FRONTED GOOSE	9.21	7.21	6.02	5.65
BRANT	11.84	11.71	0.17	0.73
OTHER GEESE [a]	27.63	12.61	0.80	0.35
TOTAL	100.00	100.00	100.00	100.00
GOOSE HARVEST (RETRIEVED KILL)	13,979	17,052	1,692,252	1,839,811
PERCENT CHANGE		+22%		+9%
SEASONAL GOOSE HARVEST PER ADULT HUNTER	0.73	0.86	0.79	0.86
PERCENT CHANGE		+19%		+9%
COOT HARVEST (RETRIEVED KILL)	1,105	438	929,665	492,217
PERCENT CHANGE		-60%		-47%
SEASONAL COOT HARVEST PER ADULT HUNTER	0.05	0.02	0.41	0.22
PERCENT CHANGE		-62%		-47%
TOTAL HUNTER DAYS	89,817	86,042	15,306,948	15,249,555
PERCENT CHANGE		-4%		0%
DAYS PER ADULT HUNTER	4.49	4.18	6.89	6.87
PERCENT CHANGE		-7%		0%
TOTAL DUCK STAMPS SOLD	18,455	19,253	2,127,312	2,132,940
PERCENT CHANGE		+4%		0%
PERCENT SOLD TO NON-HUNTERS	0.35%	1.73%	2.59%	2.94%
TOTAL ADULT HUNTERS (POTENTIAL)	18,390	18,920	2,072,308	2,070,201
PERCENT CHANGE		+3%		0%
PERCENT ACTIVE ADULT HUNTERS	73.0%	70.0%	85.0%	85.1%
PERCENT SUCCESSFUL ADULT HUNTERS	60.0%	56.7%	68.9%	67.6%
SAMPLE SIZES				
DUCK WINGS	1,173	1,647	74,338	72,398
GOOSE TAILS	152	222	7,221	8,553
QUESTIONNAIRES	564	1,192	43,653	42,119

[a] Ross' goose in Central and Pacific Flyways; Emperor goose in Alaska.

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Table C-10. Numbers of teal harvested (retrieved kill), with percent species composition, during the 1976 and 1977 September teal seasons.

	1976				1977			
	Numbers harvested	% green-winged teal	% blue-winged/cinnamon teal	Wings received	Numbers harvested	% green-winged teal	% blue-winged/cinnamon teal	Wings received
Alabama	3,405	1.1	98.9	87	2,735	5.3	94.7	75
Arkansas	10,351	10.3	89.7	29	13,406	55.6	44.4	9
Illinois	13,806	29.1	70.9	148	16,581	21.8	78.2	78
Indiana	4,273	18.1	81.9	182	4,241	21.3	78.7	188
Kentucky	1,204	33.3	66.7	3	563	--	100.0	8
Louisiana	138,063	11.7	88.3	409	101,075	18.1	81.9	364
Mississippi	2,906	5.0	95.0	40	3,188	9.5	90.5	42
Missouri	10,036	28.8	71.2	66	11,539	12.0	88.0	50
Ohio	6,858	17.5	82.5	126	4,896	21.2	78.8	170
Tennessee	4,901	27.3	72.7	11	2,936	--	100.0	1
Mississippi Flyway Total	195,803	14.33	85.67	1,101	161,161	20.6	79.4	985
Colorado	17,181	43.6	56.4	101	9,458	64.8	35.2	71
Kansas	20,587	40.0	60.0	170	32,611	25.8	74.2	221
New Mexico	2,126	16.7	83.3	66	1,819	55.6	44.4	36
Oklahoma	8,426	25.1	74.9	171	6,990	19.6	80.4	163
Texas	72,475	24.4	75.6	676	51,541	14.6	85.4	727
Central Flyway Total	120,795	29.71	70.29	1,184	102,418	23.9	76.1	1,218
United States Total	316,598	20.20	79.80	2,285	263,579	21.9	78.1	2,203

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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